UMass Dartmouth

University of Massachusetts
Dartmouth

General Catalogue

1995-96

Purposes of this Catalogue

This catalogue is the official source of information about the University's undergraduate academic programs and associated policies and procedures. Its purpose is to guide students in planning a course of study and in meeting program, department, and University requirements; and to provide information about the University to students, employees, applicants, parents, teachers, counselors, and the general public. See the table of contents and index for an outline of the information provided.

The information in this catalogue should be current for the time of publication, although some changes may have occurred between the time of going to press and the opening of the academic year. **The University reserves the right to change at any time the degrees, programs, and services offered, the requirements, and the courses.** Corrections of errors may also be made. All official changes and corrections will be filed with the Office of the Registrar.

Such charges as tuition and fees, the policies associated with such charges, and academic or general University policies are subject to change without notice. There will be no refund of tuition, fees, charges, or any other payments made to the University in the event that the operation of the University is suspended at any time as a result of any act of God, strike, riot, or disruption, or for any other reasons beyond the control of the University.

The information in this publication is provided solely for the convenience of the reader, and the University expressly disclaims any liability which may otherwise be incurred. **This publication is neither a contract nor an offer to make a contract.**

Accreditation

University of Massachusetts Dartmouth is accredited by the New England Association of Schools and Colleges, which accredits schools and colleges in the six New England states. Membership in the Association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators. Many specific programs are also accredited by professional or educational associations, as stated in the college and departmental sections of this publication.

Resolution in Support of Pluralism

The Board of Trustees affirms its commitment to maintaining an academic environment which fosters pluralism, mutual respect, appreciation of divergent views, and awareness of the importance of individual rights. To this end, we reassert the importance of civility and the valuable contribution that diversity in race, ethnicity, religion, sexual orientation and culture brings to the University community, and therefore we strongly encourage and support racial, ethnic, cultural and religious pluralism. (University of Massachusetts, 6/3/92)

Policy Against Intolerance

The Board of Trustees denounces intolerance, particularly that based on ethnicity, culture, religion, race or sexual orientation which interferes with those rights guaranteed by law, and insists that such conduct has no place in a community of learning. We also recognize the obligation of the University to protect the rights of free inquiry and expression, and nothing in the Resolution in Support of Pluralism or Policy Against Intolerance shall be construed or applied so as to abridge the exercise of rights under the Constitution of the United States and other Federal and State laws. (University of Massachusetts, 6/3/92)

Statement of Affirmative Action and Equal Opportunity

University of Massachusetts Dartmouth wholeheartedly supports and encourages the development of action programs designed to promote the employment and advancement of women, Blacks, Hispanics, Asians, Native Americans, persons with disabilities, and Vietnam-era Veterans as a means of assuring compliance with the provisions of campus Affirmative Action plans.

The University firmly supports the concept of equal opportunity without regard to an individual's race, color, religion, gender, sexual orientation, national origin, disability, or veteran status as it applies to his/her employment, admission to and participation in the University's programs and activities, provision of services, and selection of vendors who provide services or products to the University.

The following person has been designated to handle inquiries regarding the nondiscrimination policies: Special Assistant to the Chancellor for Affirmative Action/Cultural Diversity, Foster Administration Building, Room 328, University of Massachusetts Dartmouth, Old Westport Road, North Dartmouth, MA 02747. Telephone 508 999-8008.

Inquiries concerning the application of nondiscrimination policies may also be referred to the Regional Director, Office for Civil Rights, US Department of Education, J. W. McCormack Building, Room 222, Boston, MA 02109-4557.

Statement on Cultural Diversity and Inclusion

University of Massachusetts Dartmouth affirms its strong support and deep commitment to the continued development and maintenance of an academic community in which the individual dignity and potential of each of its members are given full respect, recognition, and encouragement. Our goal is an institution in which all may study, live, and work securely and productively in an atmosphere characterized by civility and openness to the pursuit of academic excellence in the finest tradition of academia.

University of Massachusetts Dartmouth is opposed to and condemns racism. Acts of harassment, intimidation, or invasion of privacy which interfere with the rights of an individual or group to participate in the activities of the academic community shall be considered to be in violation of this policy and may be dealt with appropriately under applicable University codes and as regulated by statute.

We recognize the affirmative obligation of the University to foster a diverse and integrated learning environment. To this end, the University has a responsibility to vigorously pursue efforts to attract minorities, women, and members of other historically disadvantaged groups as students, faculty members, and staff in sufficient numbers to alleviate isolation and to ensure real integration and diversity in academic life. We also recognize our obligation to nurture community-wide appreciation of cultural diversity and will dedicate appropriate resources to meet this commitment on an on-going basis.

Statement on Sexual Harassment

University of Massachusetts Dartmouth as an educational institution and an employer is committed to the maintenance of standards of conduct that will treat individuals with dignity and respect. Sexual harassment is a violation of these principles and shall not be tolerated within the academic community.

Statement on Gender Discrimination

University of Massachusetts Dartmouth is committed to ensuring equality and avoiding gender discrimination. Therefore, it is the University policy to avoid, in all University publications and communications, the use of language that perpetuates gender bias. University employees are encouraged to use gender-neutral language. In selecting textbooks and readings of the very highest quality, faculty are urged to select those that are free of gender bias.

University of Massachusetts
Dartmouth

General Catalogue
1995—1996

Undergraduate Programs and University Policies and Procedures

For Admissions Information

Director of Admissions
University of Massachusetts
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285 Old Westport Road
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The University is fully accredited by the New England Association of Schools and Colleges (NEASC) which is the regional accrediting organization for post-secondary institutions in New England.

Information about individual program accreditation appears in the department sections.

Centennial

This year marks the 100th anniversary of the University of Massachusetts Dartmouth and a wide array of events are planned throughout the year to celebrate this Centennial.

The UMass Dartmouth Campus traces its roots to 1895 when two small textile schools were chartered in New Bedford and Fall River. These grew into 4-year colleges with broad programs of study, then were merged into a university which in 1991 became part of the new, five-campus University of Massachusetts system.

In recognition of 100 years of continued growth and development, the campus plans everything from concerts to golf tournaments. In addition, many traditional campus events, such as the annual Eisteddfod festival, will take on a special Centennial theme.

"This is an important landmark in the history of the University," says Chancellor Peter H. Cressy. "It gives us an opportunity to celebrate the past and to renew our dedication to excellence and diversity." A special Centennial logo has been developed, reflecting the evolving nature of the University and promoting the Centennial slogan of "knowledge, diversity, excellence."

More information available on World Wide Web

The University of Massachusetts Dartmouth home page can be reached on the Internet's World Wide Web at:

http://www.umassd.edu/

This complete catalog, plus more information about different aspects of the University, can be found from our home page.

As this catalog went to press, our constantly growing Web pages included detailed information about: Admissions, career services, directions to the university, financial aid, sports, student organizations, and specialresearch projects. University news releases, special events announcements,and other publications are also on the Web.

In addition, there are links to home pages with in-depth information about the library, astronomy program, and the following academic departments: computer and information science, chemistry, electrical and computer engineering, philosophy, and physics. There are also links to the other UMass campuses.

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The University of Massachusetts

Founded as an agriculture college in Amherst in 1863, the University of Massachusetts is a uniquely American institution, a public land-grant university. Such institutions have three basic characteristics:

•
First, they are "people's universities," intended to serve all students who can do the academic work.

•
Second, they are committed to practical as well as theoretical education.

•
Third, they put new knowledge to work for the common good.

With those firm guidelines and a modest start from the sale of federal lands, the Amherst college grew to become the modern University of Massachusetts, the largest university, public or private, in New England. The UMass of today includes campuses in Amherst, Boston, Dartmouth, and Lowell and a Medical School in Worcester.

The University of Massachusetts Dartmouth

The Dartmouth campus traces its roots to 1895. In that year the legislature chartered the New Bedford Textile School and the Bradford Durfee Textile School in Fall River.

As the region's economic base shifted from textiles to more diverse manufacturing and service industries, the colleges changed too. They diversified their curricula, responding to the needs of new generations of students. By the middle of the 20th century they were growing rapidly, spurred by such forces as the GI Bill and the clear economic and social advantages of a well-educated citizenry. They had become multipurpose institutions, preparing engineers, health care workers, teachers, and business leaders.

In 1962 the state legislature created Southeastern Massachusetts Technological Institute by merging the small colleges in New Bedford and Fall River. There was a clear public demand for a comprehensive university, and in 1969 SMTI became Southeastern Massachusetts University. Then, in 1988, the Swain School of Design merged with the university's College of Visual and Performing Arts, strengthening programs in art and artisanry.

In 1991 a new University of Massachusetts structure combined the Amherst, Boston, and Worcester cam-puses with Southeastern Massachusetts University and the University of Lowell. Thus Southeastern Massachusetts University became the University of Massachusetts Dartmouth.

UMass Dartmouth provides educational programs, research, extension, and continuing education services in the liberal and creative arts and sciences and in the professions. It offers a broad range of baccalaureate and master's degrees vital to the economic and cultural well-being of the region and the Commonwealth. While dedicated to teaching at all levels, the university places significant emphases on graduate education and a major emphasis upon research and academic creativity on the part of faculty and students.

The 710 acre campus in North Dartmouth, part way between New Bedford and Fall River, was begun in 1964. The dramatic campus design was the work of architect Paul Rudolph, then dean of Yale's school of Art and Architecture.

The university continued to grow through the 1970s when its residence halls were finished and through the '80s as research and studio facilities came into being. In 1988 the Dion Science and Engineering Building was opened, as was the Cedar Dell Townhouse Complex. The Swain merger brought additional art facilities in New Bedford to the university.

UMass Dartmouth now has about 5,600 students, more than 2,000 of whom live on campus. It offers more than 40 undergraduate majors and 13 graduate programs, and has more than 300 full-time faculty.

The UMass Dartmouth Vision

Drawing from the vision statement for the entire University of Massachusetts, UMass Dartmouth developed a campus vision statement in 1992 placing emphasis on a special relationship between undergraduate and graduate education. Here's that statement:

The University of Massachusetts Dartmouth distinguishes itself by providing an intimate academic environment where the scholarly research and creative activities of faculty and graduate students are interwoven with the undergraduate experience. More than a regional university, the Dartmouth campus offers programs of educational excellence to undergraduate and graduate students from throughout the Commonwealth and beyond. While its academically distinguished faculty engage in professional activities of national and international scope, the campus has long been committed to economic development and has been a catalyst for regional initiatives. The university will continue its commitments to education and public service while expanding research efforts, establishing additional graduate programs, and addressing the educational needs of the state's increasingly diverse population. Its mission will reflect the university's in the following ways:

Access—Providing, within a personalized setting, a wide range of high quality baccalaureate and masters programs and selected doctoral programs; meeting the full financial need, as defined by standard measures, of all qualified applicants; strengthening student outreach efforts and collaboration with schools and community colleges; encouraging and supporting the educational aspirations of underrepresented student populations, thereby increasing the diversity of the campus community; easing transfer among institutions; and offering flexible programs for working adults.

Excellence—Offering intellectually challenging undergraduate and graduate programs that meet both individual student needs and those of the state; offering solid liberal arts curricula, for their own sake and as a foundation for professional programs; obtaining and maintaining national program accreditation where applicable; exposing students to new ideas and developments in their fields through close interaction with faculty; and building distinctive doctoral programs where research strengths exist and where special resources and needs are identified, such as the coastal marine environment, and including joint programs with other UMass campuses.

Innovation—Enabling undergraduate and graduate students to experience the creation and application of new knowledge by expanding opportunities for them to participate in faculty research on campus and internships at nearby public and private organizations, thereby enriching students' education and aiding development in the region; continuing to create innovative interdisciplinary courses and degree programs, such as project-driven courses and community-based collaborative projects in health, education and the social sciences; and placing increased emphasis on a holistic approach to the undergraduate experience.

Economic Development and Global Competitiveness—Modernizing undergraduate and graduate education and supporting economic development by more closely linking liberal and professional education with the workplace, so that students can better integrate and apply their knowledge as they learn; providing research and technology transfer to marine and environmental industries; and providing research assistance and consultation to business, labor, government, health care and social service organizations.

Public Service—Improving the effectiveness of elementary and secondary education through collaborative undergraduate and graduate teacher education and in-service programs; adding cultural dimension to the lives of citizens through exhibitions and performances in the visual and performing arts; and providing support to businesses, human services organizations, and municipalities through research and policy analysis, student internships, forums, training assistance, and community-based programs.

Quality of Life—Enhancing and supporting the quality of life for individuals within a culturally diverse university community and for the citizens of the region by providing university-level library resources, distinguished programs in the visual and creative arts, and an accessible, stimulating intellectual environment; celebrating the cultural and linguistic richness of the area in studies and events; hosting eminent scholarly forums; and building a university community that fosters personal development, respect for the individual and cultural diversity of others and responsible citizenship.

List of Undergraduate Programs

Listed are majors with the degree offered and any formal options within majors. Approved minors are also shown.

College of Arts and Sciences

Biology BS
- biology
- marine biology

Chemistry BS
- chemistry
- biochemistry
- pre-medical
- BS-MS option

Computer Science BS
Economics BA
English BA
- drama/film studies
- literature
- writing/communication

French BA
German BA*
History BA
Humanities and Social Sciences BA
Mathematics BS or BA
- mathematics
- computer-oriented mathematics

Medical Laboratory Science BS
- clinical laboratory science
- cytotechnology

Multidisciplinary Studies BA or BS
Philosophy BA
Physics BS
- physics
- materials science

Political Science BA
Portuguese BA
Psychology BA
Sociology BA
- sociology
- anthropology/social anthropology
- criminal justice
- social services

Spanish BA

Education: elementary and secondary certification

Minors in Anthropology, Biochemistry, Chemistry, Computer Science, Economics, English, French, German, History, Mathematics, Philosophy, Physics, Political Science, Portuguese, Russian, Sociology, Spanish

*Freshman admission suspended as of Fall 1993

College of Business and Industry

Accounting BS
Business Information Systems BS
Finance BS
Human Resources Management BS*
Management BS
Manufacturing Management:
Fibers and Textiles BS
- general option
- science option

Marketing BS
Textile Chemistry BS
Textile Technology BS*
- textile technology
- dying and finishing
- structural sciences

Minor in Business Administration

College of Visual and Performing Arts

Art Education BFA
Art History BA
Music BMus
Painting BFA
Printmaking BFA
Sculpture BFA
Textile Design/Fiber Arts BFA
Visual Design BFA
- ceramics
- graphic design/letterform
- illustration
- jewelry/metals
- photographic/electronic imaging
- wood/furniture design*

Minors in Art History, Music

College of Engineering

Civil Engineering BS
Computer Engineering BS
Electrical Engineering BS
Mechanical Engineering BS
Electrical Engineering Technology BS
Mechanical Engineering Technology BS

College of Nursing

Nursing BS
- basic program
- RN program

Interdisciplinary Minors

African and African-American Studies
Gerontology
Judaic Studies
Labor Studies
Women's Studies

Special Programs/Curricula

Gerontology Certificate
Honors Program
International Marketing/French Certificate
Labor Studies Certificate
Pre-Law
Pre-Medical
Post-Baccalaureate Certificate Program

List of Graduate Programs

Graduate programs are described and courses listed in a separate publication available from the Office of Graduate Affairs.

Artisanry MFA
Art Education MAE
Biology/Marine Biology MS
Business Administration MBA
Chemistry MS
Computer Science MS
Electrical Engineering MS, PhD
Nursing MS
Physics MS
Professional Writing MA
Psychology MA
Textile Chemistry MS
Textile Technology MS
Visual Design MFA

Academic Calendar

1995—1996

First Semester

Friday September 1, 1995	Academic year commences
Monday September 4	Labor Day, no classes
Tuesday September 5	Fall classes begin
Monday September 11	Last day to Add/Drop
Friday October 6	Last day to file Pass/Fail
Monday October 9	Columbus Day, no classes
Tuesday October 10	Follow Monday's class schedule
Tuesday October 17	Mid-Semester
Friday October 20	Last day to drop with a "W"
Wednesday November 22	Thanksgiving recess begins (after last class or lab)
Monday November 27	Classes resume, 8:00 a.m.
Friday December 15	Last day to drop with "WP" or "WF" Fall classes end
Monday December 18	Examinations begin
Saturday December 23	Examinations end

Sunday, December 24, through Monday, January 15, Mid-Year Vacation

Second Semester

Monday January 15, 1996	Martin Luther King Jr.'s Birthday, no classes
Tuesday January 16	Spring classes begin
Monday January 22	Last day to Add/Drop
Friday February 16	Last day to file Pass/Fail
Monday February 19	Presidents' Day, no classes
Friday March 1	Mid-Semester Last day to drop with a "W"
Friday March 8	Spring Vacation begins (after last class or lab)
Monday March 18	Classes resume, 8:00 a.m.
Monday April 15	Patriots' Day, no classes
Tuesday April 16	Follow Monday's class schedule
Wednesday April 24	Honors Convocation
Friday May 3	Last day to drop with "WP" or "WF" Spring classes end
Monday May 6	Examinations begin
Saturday May 11	Examinations end
Monday May 27	Memorial Day, university closed
Sunday June 2	Commencement

Admission to the University

Phone: 508-999-8605

Undergraduate admission to the university is selective, based on academic performance and promise. The university is interested in applicants whose scholastic performance, aptitude, interests, character, and study habits give promise of success in the academic subjects that they will study.

UMass Dartmouth admits its applicants into a specific curriculum, which is either a certain major or a cluster of majors. Applicants are evaluated both by general standards of qualification to do university work and by special standards for admission into the academic areas that they request. Access to programs may be limited by constraints of space and financing.

Each applicant's overall record is assessed for both strengths and weaknesses as indicated by such records as the candidate's secondary school class standing; subjects completed, curricular levels, and grades received; SAT scores; college-level records for transfer applicants; and other appropriate indicators. This approach gives attention to each applicant as an individual. We do not make admissions decisions based on quotas or formulas.

UMass Dartmouth admits applicants by the "rolling admission" plan. This means that there is no set deadline and qualified candidates will be accepted up until the time when the university's capacity has been reached in the program of choice.

Interviews and Campus Visits

UMass Dartmouth does not require interviews of its candidates. However, we invite applicants and family members to visit the campus and become acquainted with the university. Several times each week from October to April, and on many Saturdays, the Admissions Office schedules information sessions and campus tours. Tours are also available during the summer according to demand. Individual tours can also be arranged. Those interested are invited to call. Classroom visits may be arranged in some majors.

General Application Procedures

New freshman applicants should complete their applications as soon as possible after the conclusion of the first marking period of their senior year, preferably before the end of December and at the latest by March. Transfer applicants should apply as soon as they can after their fall semester grades are available.

As soon as a sufficient number of qualified candidates for the available space in each program—and for on-campus housing—have been admitted, admissions into that program will be closed. After March, even well-qualified candidates may be denied entrance to the university or to their first-choice program. The general laws of supply and demand have a significant effect on the admissions process. As the interests of students change from time to time, enrollment pressures in different fields of study either increase or diminish.

The university requires from each applicant the record of prior schooling and in many cases standardized test scores. Other information may be requested, and all information submitted will be considered. Every year, the university's *Admissions Bulletin* gives complete information and instructions, identifying the specific records and other information that must be submitted. The *Bulletin* also contains an application form. Those interested are invited to call to request a copy.

Application/Processing Fees

Reasonable non-refundable fees are charged for each admissions application, as announced in the next section of this *Catalogue*.

The application fees can be waived upon demonstration of significant financial hardship. Secondary school students who are eligible for the College Board Admissions Testing Program's fee waiver should have their school counselors attach a copy of that waiver form to the UMass Dartmouth application. Transfer and "adult" applicants should support a written fee waiver request with a letter from a social worker, financial aid officer, or member of the clergy.

Two Main Types: Freshman and Transfer Applicants
Applicants who, prior to entrance, will have secondary school or equivalency diplomas and who have never attended degree-granting post-secondary educational institutions are considered for **freshman** admission. Also considered for freshman admission are applicants who have successfully completed fewer than 15 semester credits of college study.

All who have attended degree-granting post-secondary educational institutions and completed 15 or more credits are considered **transfer** applicants.

Whether applying for freshman or transfer admission, those who completed secondary school at least three years prior to entering the university are not required to submit standardized test scores for admission. Approximately one quarter of our entering students are in this "Returning Students" category, and the Admissions staff is available to help with any special circumstances which may arise. Returning Student applicants who would like to discuss their educational plans are encouraged to telephone to arrange an appointment.

Freshman Applicants for Early Decision
Those freshman applicants whose secondary school freshman through junior year grades and SAT scores are strong, and who have decided that UMass Dartmouth is their first choice for a university, may apply for Early Decision admission. They benefit by receiving a decision before the number of available spaces begins to decline; in return, once accepted they must submit a non-refundable deposit and withdraw all applications to other colleges or universities. For Early Decision consideration, the complete application, including the filled-out application form, school records through the end of the junior year, and official SAT scores (taken before the senior year), must be received by November 15; decisions will be mailed by December 15.

Alternative Admission for Academically Disadvantaged New Freshmen
The university realizes its commitment to equal access through alternative admission programs. Although they may not have met entrance standards in prior schooling or as expressed in performance on standardized tests, students in these programs do achieve levels of academic accomplishment comparable to those of other students at the university. The university is committed to the recruiting, counseling, and special academic services which have proven effective in enabling these students to achieve their full potential.

Academically disadvantaged students who have the ability, desire, and motivation to benefit from the university's programs, but who lack qualifications for admission, can apply to enter UMass Dartmouth through the alternative admissions program, called **College Now**. Applicants must meet at least one of the following eligibility criteria: low income status, limited English background, ethnic student of color status. The *Admissions Bulletin* gives detailed instructions, and the program is described elsewhere in this *Catalogue*.

Applicants may be unsure whether to apply for College Now or regular admission. However, the program staff will identify internally any applicants to either program who might be served better by admission to the other program. Applicants' and school counselors' inquiries are welcome as well.

Some applicants interested in a scientific or technical major who lack the secondary-level preparation may be offered participation in the **START Program** ("**S**teps **T**oward **A**bstract **R**easoning and **T**hinking"). Women and students of color, as groups traditionally underrepresented in the scientific and technical fields, are eligible for this freshman-year program of special courses. Those who indicate a first-choice major in a science or engineering field are considered.

The START curriculum helps its students acquire math, science, and reasoning skills in a special first year program of courses in mathematics, science concepts, and problem-solving.

Students admitted to these programs are viewed as having received conditional admission to the university. To remain at the university after a stipulated trial period, they must satisfy conditions for academic performance and progress that are stated clearly in the offer of admission. They should expect to spend five years to complete the degree.

Early Admission for New Freshmen
Superior secondary school students sometimes exhaust the curricular offerings of their schools by the end of the junior year. These students may seek admission to UMass Dartmouth without a secondary school diploma. Their high school records and SAT scores must both be superior. They must also obtain from an official of their secondary school a written agreement that a secondary-level diploma will be granted upon satisfactory completion of one or two semesters of college work.

Dual Enrollment Program
UMass Dartmouth welcomes hearing from current secondary school students interested in pursuing studies here under the Commonwealth's Dual Enrollment program. This program, funded by special legislation, covers the cost for qualified Massachusetts public school students to take a course or courses at the university. Some students come here for just a course or two, enrolling concurrently in high school and university courses. A few fall under the Early Admission type described above, qualifying for full-time matriculated status as an admitted UMass Dartmouth student. Students and parents, and school officials, are encouraged to contact the Office of Admissions for assistance.

Secondary-Level Preparation: College-Preparatory Units
It is expected that the successful applicant's secondary school record will include at least 16 units of college preparatory courses:

- 4 units in English
- 2 units in social science including one in U.S. history
- 3 units in mathematics
- 2 units in the same foreign language
- 2 units in a natural laboratory science
- 3 units of college-preparatory electives.

One or more of these requirements may be waived for applicants who present alternative indications of academic potential.

Secondary-Level Preparation: Program-Specific
Certain programs within the university require specific course backgrounds in addition to the general secondary-level requirements stated above. On the other hand, the Admissions Office will consider persons of extraordinary promise and talent for admission into a program even though they do not meet all of its prior-course requirements.

- *Chemistry, Computer Science, Engineering, Mathematics, Physics, and Textile Chemistry* require 3 and one-half units in college-preparatory mathematics which must include at least 2 units in algebra and one-half unit in trigonometry; and either (a) physics and chemistry, one of which must be a laboratory course, or (b) 3 units in natural science, one of which must be a laboratory course in physics or chemistry. Physics is strongly recommended for all engineering applicants.
- *Biology, Engineering Technology, Medical Laboratory Science, Nursing, and Textile Technology* require 3 units of college-preparatory mathematics, which must include 2 units of algebra; and 2 units of natural laboratory science. Physics is strongly recommended for all engineering technology applicants and chemistry for all nursing and Medical Laboratory Science applicants.
- *Business* requires 3 units of college-preparatory mathematics, which must include 2 units of algebra.
- *Humanities and Social Sciences* majors receive the degree of Bachelor of Arts. This degree requires that students satisfy a foreign language requirement. Therefore, we specifically consider the performance of our humanities and social sciences applicants in their secondary school foreign language courses.

College Board Scholastic Aptitude Test (SAT) Results
The university uses SAT results as one means of assessing applicants' academic potential.

The *Admissions Bulletin* gives full information about how to arrange to take this test and to have score reports sent.

College Board Achievement Tests are not required for admission. However, the university urges applicants to submit these test results in appropriate subject matter areas. The achievement tests have significant predictive value, especially in the sciences, and can be a valuable source of data in the decision process.

Exceptions to the SAT Requirement

- Applicants who have left high school three or more years ago (or who have completed 30 or more transferrable credits at a college or university) are not required to submit SAT scores.
- Massachusetts residents who have been diagnosed as having a **learning disability** as determined by Chapter 766 or Chapter 344 may submit, *instead of* the SAT, proof of a diagnosis of a learning disability.

Applicants from a Second-Language Background
Sensitive to its location in an area of ethnic diversity, the university recognizes the barrier which the cultural and linguistic assumptions of standardized tests place between talented students for whom English is a second language and access to academic programs from which they can benefit. We will exempt students for whom English is a second language from those portions of our admissions standards which place them at a disadvantage.

Quality of Performance in Previous Schooling and on the SATs
For both new freshman and transfer decisions, the evaluation of each applicant relies on an assessment of the *quality* of the applicant's previous school performance, test scores, abilities, and other aspects that are relevant to a prediction of probable success at the university. For each of the majors and curricula, somewhat different criteria are applied. The derivation of these criteria is the responsibility of the departments and colleges, in close cooperation with the representatives of the Admissions Office, who will implement the criteria in individual admissions decisions.

Information about the university's previous application decisions is routinely made available to secondary-school counselors. Applicants are encouraged to consult these officials at their institutions for advice about their prospects for admission to the university.

Some freshman applicants who are rejected for admission are advised by our admissions officials to pursue studies at a community college for one or more semesters and then reapply for admission. Subsequent admission is not automatic but conditional on good performance at the community college.

Transfer Admission to the University

UMass Dartmouth welcomes transfer applications from students attending, or who have attended, public or private two- and four-year institutions. The university strives especially to facilitate the transfer of students from Massachusetts public community colleges through a variety of special contacts and communications. We accept the Commonwealth Transfer Compact.

Information about the university's previous application decisions is routinely made available to community college transfer officials. Applicants are encouraged to consult the officials at their institutions for advice about their prospects for admission to the university.

Some transfer applicants with few completed college credits who have been rejected for admission may be advised by our admissions officials to pursue studies at a community college for one or more semesters and then reapply for admission. Subsequent admission is not automatic but conditional on good performance at the community college.

Community College/UMass Dartmouth Joint Admission

The university offers access to a significant group of students through formal Joint Admission Agreements with three public community colleges, in our area: Bristol, Massasoit, and Cape Cod Community Colleges. Joint admission agreements with other public community colleges in Massachusetts are in the process of development. The university also has an articulation agreement with the Community College of Rhode Island.

By the joint admission agreement, students entering a transfer degree program at the community college are admitted to UMass Dartmouth concurrently, being eligible to transfer here after completion of the Associate's Degree without making an additional application. Achievement of a 2.5 cumulative grade average, declaring intention to participate before completion of 30 credits at the college, and remaining in the approved transfer program are the main conditions that the student must fulfill. The program involves active academic program planning and advisement by both college and university personnel, to assist students in meeting any requirements for the specific major program the student plans to enter at the university.

Prospective or current community college students should contact the UMass Dartmouth Admissions Office or an admissions officer or transfer counselor at the community college for further information.

Qualification for Admission: Transfer Applicants

In evaluating the qualifications of transfer applicants, procedures similar to those for freshman applicants are used in assessing the extent and levels of previous schooling and the quality of each applicant's performance. The exceptions are noted below. In general, secondary school records for transfer applicants who have completed relatively few college-level credits will be weighted more heavily than for those who have completed significant amounts of college-level work.

Records from Other Post-Secondary Institutions and Secondary-Level Records

Transfer students must arrange for certified transcripts to be sent to us from *all* colleges/universities that they have attended (including any for UMass Dartmouth's regular sessions and/or Division of Continuing Education). In addition, they must submit a listing of any courses in progress.

Transfer applicants who have completed 30 or more transferrable credits at a college or university are not required to submit secondary school records. Others must submit both secondary school and college transcripts. Those who completed high school through the GED program must send a copy of the GED certificate as well as the GED test scores in addition to the transcript of their last-attended school. Additional materials, such as teacher or counselor recommendations, are welcome. In specific cases, the admissions staff may ask for additional records.

College Board Scholastic Aptitude Test (SAT) Results

Transfer applicants who present at least 30 transferrable college credits at the time of application are not required to submit College Board SAT results. Others are required to do so; most will submit the scores that they earned while they were in secondary school.

more on next page

The *Admissions Bulletin* gives full information about how to arrange to take this test and to have score reports sent.

The Commonwealth Transfer Compact

The Transfer Compact offers special opportunities for students transferring from Massachusetts public community colleges to Massachusetts public colleges and universities. Specifically, the Compact is for students who will complete an associate's degree at the community college that is designed to prepare them to transfer to a four-year academic program. Students who have completed or will complete such a program are designated as Transfer Compact students by their community college.

UMass Dartmouth welcomes applications from Transfer Compact students with strong academic records. Among the advantages are a guaranteed acceptance of 60 credits in transfer, protections against having to repeat requirements (especially those for general education), and transferability of "D" grades.
The complete text of the Transfer Compact is available at the community colleges, and a transfer counselor there should be able to provide guidance and explanations. It is also available from us, upon request.

We encourage those who are attending one of the Massachusetts public community colleges—even if they will not be Transfer Compact students—to plan their studies with eventual transfer to UMass Dartmouth in mind. The counseling or advising professionals at the student's community college can assist valuably in these plans.

Advanced Standing through Transfer Credits

The quality and quantity of academic work completed at previous higher education institutions determine the amount of transfer credit accepted at UMass Dartmouth and its applicability toward a degree. We accept college/university level credits taken at an accredited institution if the content is equivalent to a course or appropriate to a curriculum that we offer. Vocational or non-college level courses (such as physical activity, trade education, and high-school level courses) are not accepted.

The university's basic course and credit transfer policies are stated as follows. These policies apply unless a special transfer agreement or program imposes different conditions approved for that program. Special conditions apply for Interchange Transfer students, students entering under the Transfer Compact, and students in Study on Exchange status.

Transferred credits and course titles will be recorded on the transcript, without a grade designation; they will not be included in the grade point average that is earned here. Only credits for courses in which "C-" or higher grades were received will transfer. Transfer credits will be limited to not more than one-half the number required for completion of the degree program. At least 60 credits of courses must be completed at UMass Dartmouth, and at least 30 of those must be advanced or specialized courses at or under the sponsorship of UMass Dartmouth. It is expected that students will spend their junior and senior years at the university. Students may be granted permission to earn up to 30 credits at another institution during their junior and senior years.

All courses accepted for transfer credit will count as UMass Dartmouth credits, but they will not necessarily count toward the specific degree requirements of the candidate's college and department. Some may be awarded as free electives only. Transcripts are evaluated under the direction of the dean of the college into which the applicant is accepted.

Interchange Transfer

Currently enrolled degree-seeking students at UMass Amherst, UMass Boston, or UMass Lowell who wish to change to be degree-seeking students at UMass Dartmouth may request Interchange Transfer. No application fee is required. To be eligible, the applicant must be in good academic standing and be currently enrolled with a load of 12 or more credits, have completed successfully at least 12 credits, and have at least a 2.0 cumulative grade point average. Interchange transfers will be subject to a 45-credit residency requirement. Their entire academic record from their current UMass campus will transfer to UMass Dartmouth.

Part-time, continuing-education, or non-degree "special students" at a UMass campus are considered regular applicants and must submit all documentation and pay the application fee. Interchange transfer applicants must submit our application form and have an official copy of their *current* UMass transcript sent to us; if they meet the eligibility criteria, no other documents need to be sent.

Please contact the UMass Dartmouth Office of Admissions for specific instructions.

Other Types of Credit

Applicants have opportunities for academic credit in addition to that provided by the transfer of credits from other institutions of higher learning.

AP examinations. Increasing numbers of students complete college-level studies while still in secondary school, through the Advanced Placement program of the College Entrance Examination Board. We award advanced-placement and/or college credit for AP examination scores of 3 or higher.

CLEP credit. The university has approved the use of the College Entrance Examination Board College Level Examination Program. This program uses test results to show that an individual has achieved college-level education in a certain academic field. We will award credits for CLEP Subject Examination scores at or above the fiftieth percentile. The equivalency of these to UMass Dartmouth's courses will be determined by the academic department for that subject. This credit may be used to satisfy distribution requirements or as electives, but normally not for credit in the major program. The same standard is used for a CLEP General Examination, except that English Composition or English Composition with Essay are not acceptable for credit.

Military training courses. For military service school training, credit will be evaluated according to the recommendations of the *Guide to the Evaluation of Educational Experience in the Armed Services*, prepared by the American Council on Education. Degree candidates normally do not use these credits within the major field.

Challenge credits. Students transferring to a Business Administration or Nursing major, as well as to certain other fields, may be asked to verify proficiency in some subjects taken earlier, through challenge examinations. Some examinations are departmentally administered; the CLEP program, mentioned above, might also be used. Details will be provided by the departments.

Continuing Education degree offerings; experiential learning. The Division of Continuing Education at UMass Dartmouth offers credit for validated prior learning to those who have become registered students. This program provides university academic credit for adult students who, through occupational or other experiences, have achieved the equivalent of college-level knowledge. Their prior learning is documented through a one-semester workshop and then evaluated for credit.

Credit courses taken from UMass Dartmouth's Division of Continuing Education are considered regular courses of the university. They appear on the transcript and the grades earned are reflected in the candidate's grade point average at the university.

Additional Application Requirements

The nature of some majors or curricula may make it desirable for additional information to be gathered systematically as a part of the application process so long as they do not contradict the admissions policies and procedures of the university. Three such requirements are currently in effect.

Multidisciplinary Studies
Applicants for admission to this individually-designed major must arrange a program of study with the program director before acceptance can be offered. This program is open to transfer applicants only.

Music Audition Requirement
Applicants for admission to the music major must audition in person in their principal applied area (either instrument or voice); the audition is a requirement for a completed application in music. Those who cannot audition in person must request permission to submit recordings.

Optional Studio Art Portfolio
The faculty of the College of Visual and Performing Arts will review applicants' art portfolios as a part of the application process. Submission of a portfolio is optional.

Complete instructions to help applicants meet these requirements are given in the *Admissions Bulletin.*

Nursing, RN Option
Fall matriculation in this program requires a student to have a nursing associate's degree or hospital diploma and a current Massachusetts RN license.

Other Applicant Types

International Applicants
(those needing to receive F-1 visas)
To the extent possible, international applicants should follow the instructions for either new freshman or transfer application, depending on their individual circumstances. International applicants will pay the out-of-state application fee and are not eligible for waivers of this fee. Upon acceptance and for as long as they attend the university, they must pay out-of-state tuition. International undergraduate students are not eligible to receive financial aid from the university.

Effective October 1, 1993, international applicants must submit their application fees in U.S. currency. Checks not in U.S. currency will be returned and the application will not be processed until the fee has been resubmitted in U.S. currency.

These applicants must also meet all requirements of the United States Office of Immigration, in order to be issued the I-20 immigration form. They must satisfy the conditions for admission to the university and become full-time, degree-seeking students.

In addition, international applicants whose native language is other than English must submit scores on the Test of English as a Foreign Language (TOEFL), which is offered at regularly scheduled intervals throughout the world. Foreign nationals who have completed a year or more of study in United States institutions, or whose education abroad was conducted in institutions in which the primary language of instruction is English, are exempt from this requirement.

UMass Dartmouth Students Seeking Re-Admission
Any student who was previously admitted to UMass Dartmouth (day division) as a degree candidate and who registered for one or more semesters may request re-admission by contacting the Registrar's Office at (508) 999-8615.

Access to Courses, for Students Not Seeking a Degree (Special Students)
There are many reasons why a person might wish to take one or more courses at the university without seeking a degree. When feasible, therefore, we allow qualified students who are not UMass Dartmouth degree candidates to register for courses as special students. They may register only for courses for which they are qualified and in which space is available after the degree-seeking students have registered, and will be held to a strict limit in the total number of credits for which they may enroll as special students. Applicants who have been denied admission as degree-seeking students may not register as special students. Specific regulations for special students are given in the Academic Policies and Regulations section of this *Catalogue*.

The week before the start of classes is available for Special Student registration. An initial review of those seeking to register as undergraduate Special Students is made in the Office of Admissions. Applicants should be prepared to discuss their plans and to show appropriate records of prior schooling.

Visiting and Exchange Students
The university welcomes visiting students, who are matriculated at another university or college but wish to pursue their studies with us temporarily. We are especially interested in supporting students whose studies at another university will be enriched by a planned semester here, arranged between academic departments or faculty advisors.

The university also participates in formal as well as informal international student exchanges. A listing of formal exchange programs appears elsewhere in this catalogue. Contact the director of any of the exchange programs for additional information about the programs. Students accepted in exchange are issued paperwork authorizing them to receive a J-1 student visa, through the Office of Academic Affairs (508-999-8024).

Students with Disabilities
Applicants are under no obligation to disclose a disability. The university will admit students who clearly demonstrate the ability to perform the academic work, without reference to learning or physical disability, as with all applicants.

Students with a physical or learning disability who are offered admission are encouraged to contact us about the support services we offer, to help them make their decision whether to enroll. An early meeting with Carole Johnson, Director of the Office of Disabled Student Services, is recommended; call (508) 999-8711. Students considering application may also call this office; the admission decision will be made independently of such preliminary inquiries.

Mid-Year Admissions
To the extent that space and fiscal resources permit, the university will admit qualified mid-year applicants.
Special efforts will be made to ensure that spaces are available in appropriate spring semester classes for those admitted.

Readmission of Former Students
Readmission of former SMU/UMass Dartmouth students is handled by the Office of University Records (call 508-999-8614). A description of the readmission process appears below, in the chapter on Academic Regulations and Procedures.

Social Security Number
The university's data processing system uses nine-digit numbers to identify applicants and students. The university requests all applicants (except international students who lack one) to submit their social security numbers for this purpose. Those who do not wish to volunteer their numbers will receive the same consideration as those who do. Upon request at any time during the application process or as a continuing student, one may request and receive a special nine-digit identification number. Applicants who do submit their social security numbers can be assured that the university will respect and protect their privacy.

Graduate Admissions
Contact the Office of Graduate Affairs for information, program descriptions, and application materials. Phone (508) 999-8604.

Regional Student Admission: Reduced Tuition Program
The New England Regional Student Program enables residents of Rhode Island, Connecticut, Maine, New Hampshire, and Vermont who apply for academic major programs not available in their own public colleges and universities to receive special consideration for admission and to pay significantly reduced tuition at this university (in-state tuition plus 50%). Secondary school guidance counselors and college transfer officers can provide details about this program, or one can contact the New England Board of Higher Education, Boston, MA 01984, phone (617) 357-9620. (See chart below.)

The following table indicates UMass Dartmouth undergraduate programs that are available to New England residents at reduced tuition charges:

Program	Eligible State Residents
Textile Chemistry	CT, ME, NH, RI, VT
Manufacturing Management: Textiles	CT, ME, NH, RI, VT
Portuguese	ME, NH, RI, VT
Textile Design	CT, ME, NH, RI, VT
Visual Design	ME, RI, VT
Art Education	RI

Expenses and Student Financial Services

Undergraduate and graduate students at the university pay tuition and various fees. In addition, they will have costs for textbooks and other incidentals and for meals and housing. This section gives information about the structure of charges at the university, focusing specifically on charges to undergraduate students. It is intended to assist students and their families in their financial planning.

Detailed information on graduate student charges is available from the Office of Graduate Admissions.

The university provides comprehensive financial aid and related services. Applicants and current students are invited to inquire about the aid and scholarship opportunities, which are described later in this chapter.

The cost to students of an education at a public university remains one of the great bargains of our time. While there have been increases in recent years, the charges are still very affordable, especially when one considers the high quality of the education offered. Tuition and fees cover a part of the costs, but the re-mainder is made available by the taxpayers of the Commonwealth. The result is a creative partnership between the individual students and their families and the members of an enlightened democracy, which believes that the economic, political, and cultural success of the society depends on a well-educated citizenry.

Disclaimer: Currency of Information

In preparing this *Catalogue*, we have made every effort to give the most up-to-date information possible. However, changes in tuition and fees may occur after the book has been printed. An exact schedule of all current charges is available from the Office of the Bursar, Foster Administration building, second floor.

All expenses are subject to change at the discretion of the Commonwealth, the Higher Education Coordinating Council, or the University. Similarly subject to change may be various policies associated with charges.

Payment Policy

All charges are due and payable at a date set by UMass Dartmouth (usually August 15 and December 27). Bills will be mailed to the student's permanent address; students must take care that they list an appropriate permanent address, for this reason. All payments received after the due date indicated will be charged a $25 late fee.

The university makes available the services of a private financing program to assist those students who wish to spread their tuition and fee payments out rather than paying the entire amount at the beginning of the term. Information and application forms are available from the Bursar.

Student Charges

Listed below are the many student charges approved for the university. Each type of charge is described separately—tuition, mandatory fees, variable fees, one-time fees, and room/board charges—and the amounts are presented in a comprehensive table for easy reference.

Annual Tuition

As a state-supported institution, UMass Dartmouth's programs and facilities are available at reasonable tuition rates to residents of the Commonwealth of Massachusetts. *Annual tuition charges shown are rates for the 1995-1996 academic year.*

Under the New England Board of Higher Education's Regional Student Program, residents of other states in New England are eligible for reduced out-of-state tuition for some academic major programs not available in their own state. See the Admissions section of this *Catalogue* for additional information.

The base tuition charge covers 12 credits or more each semester. Charges are prorated for fewer overall credits.

Summary of Annual Expenses

Excluding Room and Board
(and *excluding* individual and one-time expenses)

	Undergraduates	Graduates
Massachusetts Residents		
Tuition	1836	2206
Curriculum Support Fee	1953	2111
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Total	**4122**	**4650**
Non-Massachusetts Residents		
Tuition	6919	6919
Curriculum Support Fee	2967	2967
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Total	**10219**	**10219**
Regional Student Program Non-Residents		
Tuition	2754	3309
Curriculum Support Fee	2460	2539
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Total	**5547**	**6181**

Including Room and Board
(and *excluding* individual and one-time expenses)

	Undergraduates	Graduates
Massachusetts Residents		
Tuition	1836	2206
Curriculum Support Fee	1953	2111
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Room and Board (19 meals)	4855	4855
Total	**8977**	**9505**
Non-Massachusetts Residents		
Tuition	6919	6919
Curriculum Support Fee	2967	2967
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Room and Board (19 meals)	4855	4855
Total	**15074**	**15074**
Regional Student Program Non-Residents		
Tuition	2754	3309
Curriculum Support Fee	2460	2539
General Fee	240	240
Campus Center Fee	70	70
Health Fee	23	23
Room and Board (19 meals)	4855	4855
Total	**10402**	**11036**

All tuition cost figures are based on enrollment in 12 or more credits per semester. Fees are based on 10 credits or more.

An additional cost of $500 for books and supplies is typical, although there is considerable variation for different subjects of study.

Tuition Residency Requirements

A Massachusetts "resident student" is defined as one whose legal domicile has been within the Commonwealth of Massachusetts for a period not less than 12 months immediately preceding the date of the applicable semester. All others are defined as "non-resident students." All students attending the university on a "student visa" will be considered non-resident students.

No student shall be deemed to have become a resident student solely by attendance at the university. On the other hand, resident students shall not lose their status as such as long as they are registered for successive semesters at the university. The Chancellor of the University is authorized to determine the residency status of all students in accordance with these policies, and his or her decision shall be final and binding.

In order to be charged as a Massachusetts resident student, a student must present a residency form to the Admissions Office. Full details about the process and the exact conditions are available as a part of the admissions application process.

Any willful misrepresentation by a student for the purpose of acquiring or retaining resident status shall be deemed sufficient cause for dismissal from the university.

Usually, the domicile of a minor is presumed to be that of the parents or guardian unless the minor is emancipated. One's domicile is the permanent home to which the student plans to return at the termination of any temporary residence elsewhere. "Permanent home" means that place which a person considers to be home either permanently or for the foreseeable future. One can have but a single domicile at any time.

Annual Fees

The base for charges are **yearly** charges for a student taking 10 credits or more each semester. Charges are prorated for students taking fewer than 10 credits (except the Health Insurance fees). Fees are billed one-half each semester.

Curriculum Support Fee
All full-time students are assessed a curriculum support fee, which is calculated by a different rate depending on state residency and undergraduate or graduate level. This fee contributes toward the support of the many academic services of the university.

General Fee
All students are assessed a General Fee. The fee is currently used to support the men's and women's athletic programs, student government, student publications, the student radio station, and various other student related activities. These fees are determined by the university's students, through the student governance process.

Campus Center Fee
A Campus Center fee is used to support the programming activities and general administrative expenses of the Campus Center. A Board of Governors, composed of 13 students, one alumnus, and two administrators, oversees the operation.

Health Fee
All students are assessed a Health Fee yearly. This fee is used to support the on-campus Health Services.

Health Insurance Fee
Students enrolled in more than 7 credits are required by state law to be covered by appropriate health insurance. The university charges a health insurance fee to these students, payable with the fall tuition, unless they are already covered by an appropriate insurance program. This fee is waived if the student presents proof of appropriate insurance coverage.

The fee covers the cost of enrollment in a program for group health insurance coverage that has been negotiated by the university. For each academic year, the charge for this health insurance coverage will be re-negotiated. Students enrolling in this plan receive full disclosure of the benefits they will receive. Detailed information is available at the Student Health Office or the Bursar's Office.

MassPIRG Fee
All students are assessed a $10 per year MassPIRG fee payable with the fall semester tuition. This fee may be waived by completing a waiver form at the Bursar's Office. MassPIRG, the Massachusetts Public Interest Research Group, is described elsewhere in this catalogue.

Tuition and Fees Waiver for Students Over 60

Students sixty years of age or over are exempt from tuition and mandatory fee charges (Massachusetts residents only). Applications for tuition and fee exemption may be obtained from the Bursar's Office.

Variable Fees

Studio/Lab Fees ("S/LA Fees")
Students registered in certain courses are required to pay Studio/Lab Fees, which usually range from $10 to $40 but are higher for a few courses. These fees cover costs associated with the delivery of instruction, and the fees thus directly benefit the students in the class for which they have paid a fee. These fees, for example, provide supplies and equipment for scientific laboratories and supplies for the art studios.

Students registered in clinical nursing or medical laboratory science courses and Medical Laboratory Science students entering their clinical practicum are required to pay a fee for liability insurance.

Engineering Equipment Fee
All students enrolled in the College of Engineering will be charged a $150 fee each semester, to assist with the costs of laboratory equipment.

Nursing Instructional Fee
All students enrolled in the College of Nursing will be charged a $160 instructional fee each semester.

Room and Board Charges

Students of the university who take advantage of the on-campus residence program are presented with a number of plans, the costs for which are listed here. Specifics of what each plan provides are available from the Office of Housing and Residential Life, and are summarized in the chapter The Campus Experience.

Residence Hall Room and Board charges *for the 1995-1996 academic year* are as follows:

19 meal plan double room	$4855
Flexible 16 meal plan double room	$4837
Flexible 12 meal plan double room	$4719
Flexible 7 meal plan double room	$4367
Cedar Dell	$3088

Single room: Add $150 per year.

Room only charges for the Cedar Dell Student Apartments are $3088; meals are not provided. Meal plans are available to Cedar Dell and to non-resident students.

Further details and instructions for reserving a space are mailed to every applicant who has been accepted for housing. Students who have been accepted for admission to the university and are offered housing must reserve a space in housing by submitting a *housing reservation deposit of $100*. This deposit is paid at the same time as the admissions deposit, described below; likewise, as well, it may be refunded upon request until the stated deadline. Complete instructions are given along with the letter of admission. This fee will be applied the student's housing bill, upon registration. Applicants who fail to make this payment will forfeit their housing reservation, unless an arrangement has been made with the Director of Housing and Residential Life.

Application Fee
Massachusetts applicants are charged a $20 non-refundable application fee.- Non-Massachusetts applicants are charged a $40 non-refundable application fee.

Matriculation Fee (Admissions Deposit)
Students who have been accepted for ad-mission to the university must reserve a space in the entering class by submitting a matriculation fee of $50. Admitted applicants are given until a stated deadline to submit the deposit, after which date the space reserved for them will be given to another candidate. Prospective students who have a hardship associated with this deadline may discuss that situation with the Director of Admissions. Complete instructions are given along with the letter of admission. This fee will be applied towards tuition, upon registration. Similarly, a housing reservation deposit of $100 is charged.

Orientation Fee
An Orientation Fee is paid by all incoming freshmen and transfer students to defray the expenses of the summer New Student Orientation Program. Freshmen attend a two-day, overnight program, and transfer students attend a day-long program. The fee is $90 for new freshmen and $50 for new transfer students.

Readmission Application Fee
Applicants for readmission are charged a $15 readmission fee, beginning with the 1995 fall semester. The fee, which covers costs associated with processing the application, is to be paid before the student's file is forwarded to the department for consideration.

Graduation Fee
A Graduation Fee of $80 will be assessed all students in their last semester prior to receiving a degree, $70 of the fee to help defray commencement costs. The additional $10 provides a one-year membership in the Alumni Association.

A refund of the Alumni Association membership fee may be obtained by those not wishing to participate, if application is made between February 1 and February 28.

Books and Supplies
Costs for books and supplies vary with the habits of the individual as well as with the nature of each student's academic program. The following information may provide a general guideline, for planning.

Costs for books and supplies vary with class and curriculum, but $500 per year is an estimated average (generally, books cost more in the scientific and technical fields). First year Engineering students have additional expenses for engineering drawing equipment and related materials. Students in the College of Visual and Performing Arts will incur some additional expenses for art supplies.

Students registered in clinical nursing courses have an additional expense for uniforms and for insurance. They are also responsible for providing their own transportation for clinical practice.

Medical Laboratory Science seniors have additional expenses for uniforms and lab coats, malpractice insurance, and commuting to participating hospitals.

Student Payments: The Bursar's Office
All tuition, fee, room, and board payments can be made at the Office of the Bursar, room 208 of the Foster Administration building, open daily from 8:00 a.m. to 4:30 p.m. Payments can be made by check, money order, Mastercard, or Visa. *Student Account Information*, a booklet describing the various fiscal fees and regulations governing payment schedules and refunds or reimbursements, is available at the counter.

Mastercard or Visa are accepted for payment as well as check or money order.

Students are expected to keep their accounts current and to pay their financial obligations to the university. In appropriate circumstances the Bursar's Office may impose a variety of restrictions in order to enforce payment of an obligation. The Vice Chancellor for Fiscal Affairs hears appeals of difficult cases.

Refunds
A student who withdraws officially from UMass Dartmouth for any reason during an academic semester will be granted a refund of *tuition only* according to the refund schedule given here:

Refund Schedule for Tuition

Within the first two weeks of the semester	90%
During the third through sixth weeks	60%
After the sixth week	No refund

A student who remits, in advance, a payment of tuition and fees but does not subsequently register will be given full refund of tuition and fees.

Fees, unlike tuition, may not be refunded after a student registers. If a registered student officially withdraws after the first day of class of the fall semester, all fees are forfeited and tuition is refunded in accordance with the refund schedule listed above. The Orientation Fee is not refundable except in special circumstances approved by the orientation program director.

All refunds are based on official withdrawal notices as dated and processed by the Registrar's Office and then forwarded to the Bursar's Office.

Financial Aid Office
Generally, many people are not aware of the opportunities for financial assistance that are available. Aid may be available to those who are able to pay for some of their educational costs as well as to those who need a more substantial level of support. The Financial Aid Office, located in the Foster Administration building, room 105, welcomes inquiries from both current and prospective students and their families. To assist applicants to the university, the office participates in a variety of on-campus and regional financial aid presentations and seminars. Detailed information is given each year in the *Admissions Bulletin* publication.

Financial assistance in the forms of need-based and non-need-based work-study employment, loans, grants, scholarships and tuition reductions enables students to continue their education in spite of limited personal resources. Some students at the university receive a full package of financial aid. Others receive a partial amount of support. The eligibility for a need-based financial aid award is based on each individual applicant's financial need, which is determined in the financial aid application process. Both the amount and the type of aid awarded are related to the financial needs and circumstances of the individual.

The Financial Aid staff is committed to helping applicants and students with all phases of the aid application and award process. The office provides much guidance in helping applicants through the steps in the process; however, it is ultimately the responsibility of the student who desires aid to obtain the necessary forms and instructions from the Financial Aid Office and to fill out all required forms accurately and to supply all necessary information.

One form of help is offered through the Peer Counseling Program, which is staffed by students trained in financial aid counseling. These peer counselors help students to understand and complete successfully the financial aid process, improve the dissemination of aid information, and provide student feedback to improve the services of the Office.

Students who receive need-based financial assistance are subject to progress and performance requirements in the continuation of their studies. These standards are outlined in the Academic Regulations and Procedures section of this *Catalogue*, and full information about the process and its conditions is available in the Financial Aid Office.

Tuition Reduction Program
The tuition reduction program offsets raises in tuition by the awarding of tuition reductions to financially-needy undergraduate students (except those in Continuing Studies) who are legal residents of Massachusetts and U.S. citizens or eligible non-citizens as defined by the federal guidelines for financial aid eligibility. Students must also have applied for the Pell Grant to be eligible and must demonstrate financial need as defined by federal financial aid guidelines. These awards are made in increments up to a maximum of the full cost of resident tuition and are awarded by the Financial Aid Office. Eligibility is determined by demonstrated financial need on the same basis and the same application procedures and deadlines as with other University-administered need-based aid programs.

Scholarships
The university offers many private and foundation scholarships, which originate from a variety of sources. A listing of the scholarship opportunities is provided in the *Student Handbook* and may be obtained from the Office of Financial Aid. Included are both merit-based and need-based scholarships, which are often targeted for particular types of students.

The Chancellor's Four-Year Merit Scholarships are awarded to outstanding Massachusetts high school seniors and transfer students completing the associates' degree at Massasoit, Bristol, and Cape Cod Community Colleges who have been accepted at UMass Dartmouth and indicated that they are likely to enroll. Eligible students are nominated by guidance counselors or administrators at their school/college, following general criteria established by the university. For Fall 1995, Chancellor's Scholarships were offered to all freshman applicants in the top 25% of their class and having a combined SAT of 1180 or above. Chancellor's Four-Year Talent Scholarships are awarded to outstanding students of color graduating from Massachusetts high schools who have been accepted at UMass Dartmouth and intend to enroll. The application, screening, and award process is handled in the Office of Admissions. Information about these programs is made available directly to the school or community college, or you may contact the UMass Dartmouth Admissions Office.

A selection of other merit-based scholarships is offered competitively to entering freshman students on the basis of academic achievement and evidence of intellectual and personal creativity. A list of eligible applicants is compiled each year from those applicants whose College Board SAT scores and high school records are exemplary. Eligible applicants are then invited to apply, and finalists attend an interview session on campus. Information about this program is available from the Office

of Academic Affairs, Foster Administration building, room 310.

Beginning Fall 1995, exceptional applicants to the University of Massachusetts are awarded a Commonwealth Scholarship. This scholarship, which covers mandatory fees, tuition, and on-campus housing for four years, is awarded to enrolling Massachusetts freshman students with weighted grade point averages of 3.8 or above and combined SATs of 1350 or above.

Student Employment

Students at the university can contribute toward their college expenses and gain valuable work experience through many varieties of student employment. Many students have work allotted through federal college work-study awarded as a part of financial aid. In addition, however, many others find campus jobs regardless of whether they have demonstrated a financial need or received an aid award. Furthermore, others seek part-time or summer work off campus, and the university assists them in learning of such opportunities.

Students seeking employment, both those awarded federal work-study and those seeking other forms of work, should visit the Office of Career Services to learn about work opportunities and receive job assignments.

Students who are awarded federal work-study through the financial aid process receive the necessary support to obtain their actual work-study assignment from the Career Services Office. Information sessions held during the summer and into the fall semester give the information students need to make the most of their college work-study experience. Many kinds of on-campus work-study assignments are available, and off-campus work-study is also available through the Community Service Learning Program.

Non-work-study employment is also found at Career Services. The Student Employment Directory lists positions with various campus organizations and departments, and the office staff assists students in matching their interests and qualifications to the available positions. The office also maintains a listing of off-campus part-time work and summer jobs, posting vacancies on bulletin boards in the office and, along with full-time opportunities, publishing announcements in the weekly JobTrakker Bulletin.

The Campus Experience: Services and Support

Academic Enrichment and Academic Support

Academic Advising

Students are aided in their adjustment to academic life and in their decision-making processes through regular conferences with a designated faculty advisor. Each college has an academic advising network for its students, and the campus-wide Academic Advising Center serves students in transition. In general, students who have declared a major will be assigned an advisor within that major. Students should consult with their advisor about course scheduling, registration procedures, grading practices, and academic problems and concerns.

Academic Advising Policy Statement*

The functions of academic advising at UMass Dartmouth include:

1.
Assisting students in self-understanding and self-acceptance (value clarification, understanding abilities, interests and limitations).

2.
Assisting students in their consideration of life goals by relating interests, skills, abilities, and values to careers, the world of work, and the nature and purpose of higher education.

3.
Assisting students in developing an educational plan consistent with life goals and objectives (alternative course action, alternate career considerations, and selections of courses).

4.
Assisting students in developing decision-making skills.

5.
Providing accurate information about institutional policies, procedures, resources, and programs.

6.
Making referrals to other institutional or community support services.

7.
Assisting students in evaluation or reevaluation of progress toward established goals and educational plans.

8.
Providing information about students to the institution, colleges and/or academic departments.

9.
Facilitating the students' successful attainment of educational and career goals.

10.
Facilitating the students' achievement of GPAs consistent with the abilities.

11.
Making students aware of the wide range of services and educational opportunities that may be pertinent to their educational objectives.

12.
Assisting students in exploring the possible short-and-long range of consequences of their choices.

13.
Assisting students in choosing educational and career objectives commensurate with their interests and abilities.

Students are required to meet with a faculty advisor prior to registering for the next semester's courses. The advisor can call a conference with the student at any time, with reasonable notice. All members of the faculty have scheduled conference hours posted on their office doors. The student, not the advisor, is ultimately responsible for seeing that his or her program fulfills degree requirements.

All students without an assigned faculty advisor (including undeclared majors) should report to the university's **Academic Advising Center**.

The Academic Advising Center, located on the ground floor of the Foster Admininstration Building, is open every school day and many days in the summer. It offers academic advice and referral to students from all majors. The center is staffed by faculty members who encourage students needing help with course selection, choosing a major, finding an advisor, getting registered, etc., to call or stop by.

*Adopted from the National Academic Advising Association

International Study and Travel

Students interested in pursuing a course of study and travel in another country may obtain assistance in academic planning from the Academic Advising Center. Information about foreign and domestic colleges and universities offering these programs is available from the Student Life Office, Foster Administration Building, room 209. Students may remain registered as continuing students of this university while they pursue studies abroad, through a Withdrawn on Exchange status.

University Honors Program

University-wide honors activities are available to students who demonstrate high academic achievement. This program is described more fully in the Interdisciplinary and Special Programs section of the *Catalogue*.

Pre-Medical, Pre-Law, and Pre-MBA Advising

Students who wish to prepare for admission into graduate schools of medicine, law, or business have many options open to them. By the judicious use of electives, any student within the College of Arts and Sciences can satisfy the course requirements of most medical, law, or business schools. Any student interested in pursuing one of these careers should see one of the following advisors early in his or her academic career:

- Medicine: Prof. Alan Bates, Chemistry Department; Prof. Donald Mulcare, Biology Department, Prof. Eileen Carreiro-Lewandowski, Medical Laboratory Science Department. The Biology and Chemistry Departments both offer formally-structured pre-medical options, but pre-med advising is available to students, in any major, who are aiming at a medical career.
- Law: Prof. Kevin Hargreaves, History Department
- Business: Prof David Berger, Economics Department

Cooperative Learning Center
The Cooperative Learning Center (CLC) is an academic support service which provides peer tutoring, small group review sessions, workshops, and handouts for all students, as well as support services for disabled students. The goal of the CLC is to help students achieve academic excellence. The CLC is organized into four centers—the Disabled Student Services, Math and Business Center, Science and Engineering Center, and Writing and Reading Center. Each of these centers has a professional director and is staffed by qualified, caring student tutors and aides, who have been recommended by faculty. These centers are in the following convenient locations:

•
Disabled Student Services, Group I-016, x8711
Support for learning and physically disabled students, including mobility assistance, note takers, information for Talking Books, advocacy.

•
Math and Business, Group I-010, x8716
Tutoring in algebra, calculus, accounting, economics, management science, elementary statistics.

•
Science and Engineering, Group II, 217B, x8710
Tutoring in biology, chemistry, physics, nursing, civil, electrical, computer, and mechanical engineering.

•
Writing/Reading Center, Group I-220, x8710
Tutoring in English, history, philosophy, political science, psychology, sociology, English as a second language, essay writing, research papers, business and technical communication, reading, and study skills.

•
In addition, through a federal Student Support Services grant, the following services are available to eligible students: mentors, study groups and study partners, assistance in preparing applications for graduate school, individualized needs assessments, cultural activities, and academic enrichment activities.

University Library
The University Library supports and supplements all programs of instruction and research at the university. By cooperating with the faculty in developing the resources which meet curriculum requirements and by remaining sensitive to the needs of students, faculty, and the general public, the library is constantly expanding and adapting its collection and services.

In addition to a book collection of over 350,000 volumes, the library subscribes to more than 2,000 periodicals and has over 150,000 U.S. government publications and more than 8,000 non-print items. All these materials are accessible through an on-line catalog through terminals in the library and on the campus network. To help students use these and other resources, the library provides one-on-one instruction with student interns and individualized research assistance with professional librarians.

The university identification card entitles students and faculty to use and borrow library materials from any public college or university in the state. In addition, a large interlibrary loan network and delivery system makes millions of volumes available to library users. UMass Dartmouth is also part of the Boston Library Consortium, an association of the major college and research libraries in Massachusetts.

The library is the largest building on campus, has seating for 1,200 people, and is open seven days a week during the academic year.

By providing information and then teaching the skills necessary to communicate it, the library contributes vitally to both formal education and lifelong learning.

Television Department
Instructional videotapes are made by the Television Department in cooperation with students, faculty, and staff in the TV studios located in the library's basement.

Students make seminar presentations on videotape as part of their course work, as well as TV commercials for advertising classes, management and psychology role-playing, and special graduate work.

Faculty members make use of the facility to give lab demonstrations which require close-up viewing for large classes, to interview guest lecturers not available for a particular class time, and to make specially paced programs for students to use in conjunction with regular class work. Staff members make information available to the campus on videotape in a variety of areas, such as how to put together a resumé and general orientation information.

Anyone wanting to discuss program ideas is welcome to meet with the television staff.

Academic Computing Services
Computing is an integral part of the curriculum at this university. Faculty in many departments have developed creative and exciting ways for students to learn by using computers. Academic Computing Services (ACS) provides access, user support, and training for students, faculty and staff using computers. The main ACS office is located in Group II, room 209.

To provide the best assistance possible, ACS has standardized on two microcomputers: Apple Macintosh and IBM PC. In addition, the program supports the use of the central VAX computers. There are over 200 microcomputers or terminals in public access computing clusters. The computing clusters, located on the first floor of the library and in most classroom buildings, are designed to support the class work of students. These facilities are open to all students, staff and faculty at the university. Standard microcomputers are sold to

full-time students and faculty at a substantial discount in the Campus Store. All academic buildings on the campus as well as the dormitories are connected to a campus-wide network; the network can be reached by telephone when using a modem off campus.

ACS staff provide help to students using a variety of standard software applications including word processors, spreadsheets, graphics, communications and database management tools. Public access clusters are always staffed by a student employee. Professional staff are available to provide back-up support, and individual consultations can also be arranged. In addition, there is a centralized Help Desk for assistance with standard hardware and software. ACS has written guides and manuals for most of the supported software and *The Student Guide to Computing Services*. These publications are available free of charge at the Help Desk on the first floor of the library.

At the beginning of each semester the Academic Computing staff give New User Sessions for the Macintosh, IBM PC, and VAX. Each session consists of 90 minutes of introductory training for students who have never used a computer. Follow-up sessions teach more about word processing techniques on the Macintosh and IBM. There is no charge for these sessions. Students can find out about them at the Help Desk. Mini courses that provide in depth training in supported applications are also offered by ACS through the Division of Continuing Studies.

College Now
College Now is an admissions and support program for students whose educational achievement has been hampered as a result of social, educational or economic inequities. From the moment of admission to graduation, students enrolled through the College Now Program are provided with essential supportive services. College Now freshman students participate in an individualized Fall academic program in which they receive assistance and guidance in developing and sharpening those basic academic skills and attributes that are vital to their success at the university. Each College Now student is assigned a counselor who, during the student's five years to graduation, will offer assistance with goal setting, academic achievement, and short- and long-range planning.

See the Admissions section of this *Catalogue* for information about admission to the university through the College Now program.

Office of University Records and the Registrar
Located on the first floor of the Foster Administration building, this office serves the instructional program by preparing, retaining, and making accessible all records pertaining to the academic programs and the academic work of the individual students of the university. Here students register for classes and receive the records of their progress and achievement; when they graduate, all students' academic records are made available through a transcript-production service. Here the schedules of the instructional program are prepared each semester for the academic departments.

Beyond such services, the Office maintains the record of the university's academic affairs through the computerized Student Information System and monitors and enforces many of the academic procedures and policies of the university, as described in the Academic Policies and Procedures section of this *Catalogue*.

Veterans' Affairs Office
VA programs are approved for benefits available under specified chapters of Title 38, U.S. Code. Eligible students must obtain an application from the Office of Veterans' Affairs on campus, or from their regional Veterans Administration Office. The Veterans Administration will issue a Certificate of Eligibility which should be presented to the Office of Veterans' Affairs for certification of enrollment. It is the veteran students' responsibility to notify the Veterans' Affairs Office of any changes in course credit load or addresses, in a timely manner. Counseling services are available for some veterans depending on the specific Chapter they are certified under; these services are available at the VA Regional Office in Providence, RI.

Veterans tuition waivers are available for those individuals who are considered Veterans under M.G.L. Chapter 4, Section 7 (43), including WWI, WWII, Korean, Vietnam, Lebanese peace keeping force, Grenada rescue mission, the Panamanian intervention force, or the Persian Gulf, provided they meet other eligibility criteria, to include: a permanent legal resident of Massachusetts for at least one year and in accord with the university's residency requirements; not in default of any federal student loans or owing a refund; must be a degree candidate or eligible to apply for a degree candidacy.

Office of Disabled Student Services
The Office of Disabled Student Services, a part of the Cooperative Learning Center, is a support organization helping students who are disabled to pursue their educational goals while adjusting fully to their new environment.
The following services are provided on an individual basis:

- mobility assistance
- note-taking
- peer counseling
- advocacy and support

Helping with academic procedures such as orientation, financial aid, residence hall arrangements and placement, the Office interfaces with all university resources to give an added dimension to their services. Beyond satisfying the immediate needs of students, the Office

organizes and holds workshops addressing issues of sensitivity and awareness within the university.

The policy of UMass Dartmouth regarding admission and access to programs prohibits discrimination on the basis of disability. Applicants to the university and enrolled students are not required to disclose a physical or a learning disability. However, disabled applicants and students are invited to contact the university's Office of Disabled Student Services to discuss assistance that they might require. These confidential conferences enable prospective students to determine if UMass Dartmouth can meet their needs but are kept entirely separate from the admissions decision. The information will be used in accordance with 34 Code of Federal Regulations Part 104.

The Office of Disabled Student Services is located in the basement of Group I, room 016. Inquiries are invited by phone at 508-999-8711.

Testing Office
The Testing Program, administered by the Division of Continuing Studies, provides a range of testing services to both university students and people throughout the region. Among the standardized academic tests offered are ACT/PEP, Advanced Placement exams, CLEP, GRE, GMAT, LSAT, TOEFL, MPRE, and MAT. State tradespeople can also be licensed by taking the Massachusetts examinations for barber, water systems, electricians, gas fitters, plumbers, radio-TV technicians, and construction supervisors. Examinations for various academic curricula, such as the CEN for nursing students, are also administered by the Testing Program.

Testing is held at a variety of times and dates (often on Saturdays). Necessary registration fees are charged. Call 508-999-8039 or leave messages at 999-8639.

Upward Bound Program
Upward Bound is a college preparatory program that provides academic and counseling support services to students who attend New Bedford and Wareham High Schools. It is designed to generate the skills and motivation necessary for education beyond high school, by providing high school students with tutorial and instructional services coupled with intensive career and personal counseling.

During the academic year students receive tutoring and counseling in their local high school. A variety of cultural and educational experiences are implemented in order to give a holistic approach to the program. A six week summer residential component takes place at UMass Dartmouth. Students attend classes in English, Math, Science, and Computer Science and attend regularly scheduled counseling and tutorial sessions.

In addition, some Upward Bound students are offered tuition-free college credit courses at this university.
Many of the students who enroll in Upward Bound are prime candidates to become high school drop-out statistics. The support services they are offered encourage and motivate them to complete their high school education and apply to post-secondary institutions. To date, 100% of the Upward Bound graduates have been accepted into institutions of higher learning.

**Vice Chancellor
for Student Services**
The vice chancellor directs and supervises all of the activities of the Division of Stu-dent Services in order that they meet effectively the broad educational goals of the university and the individual needs of students.

The staff in the Division of Student Services assists students in gaining maximum educational benefit from their college experience. These offices provide a total program of assistance designed to meet the basic needs of students and to create learning experiences which encourage self-understanding, self-direction, and community responsibility.

**Dean of Students
Student Life Office**
The Student Life Office is staffed by the dean of students and an associate dean who serve in effect as university ombudsmen, rendering assistance to all students in personal and social matters. The purpose of this office is to improve the quality of campus life by helping student groups and organizations and administering the code of student conduct. In addition, this office supervises the staffs of the Campus Center, Student Activities Office, Child Care, and Women's Center as well as the university chaplains.

International Students' Advising
The Student Life Office serves international students by providing general advice and assistance with immigration forms and any other official papers they need while studying here at the university.

Counseling Center
The University Counseling Center offers the broad spectrum of psychological and educational support services and assists students in defining their goals and developing their potential. Short-term counseling and psychotherapy (individual or group), educational, vocational, and psychological testing, and structured groups and training programs are provided by trained and experienced counselors and psychologists.

At the university, counseling is considered a learning process through which one can understand and accept one's self, one's environment, and the relationships between the two—and thus mobilize energies, select appropriate goals, and adopt effective behavior.

Students visit the Counseling Center for many reasons. Some want information about academic or service resources; some wish to talk about their major or graduate school plans; others are experiencing difficulties with study skills or anxiety about exams. Many come to talk about their relationships with others or about themselves—their hopes, fears, identity, self-confidence, or doubts. The staff counselors and psychologists treat all concerns professionally and confidentially. A consulting psychiatrist provides psychiatric evaluations and referrals.

The Counseling Center, located in the upper-level of the auditorium annex, maintains an educational information library and extensive self-help literature. An alcohol/drug educator is available to assist students with concerns about substance use.

Student Advisor Program (SAP)
The Student Advisor Program (SAP) is composed of students who are trained to provide a variety of academic support services. Through a student-run drop-in center on the second floor of the Campus Center, Student Advisors provide easily accessible academic information, an opportunity for students to express their concerns about their academic experience, and opportunities to learn about the university's resources.

The Beat Academic Probation (BAP) program is offered each semester to students who have been put on academic probation due to their having obtained a Grade Point Average (GPA) below a 2.0. BAP offers the student a chance to raise his/her GPA by attending the workshops; it also guarantees that they will not be dismissed from the university the following semester if their grades have not reached the 2.0 level. BAP workshop sessions cover areas such as study skills, note-taking, test anxiety, test-taking, and time management.

Members of the Counseling Center staff assist in the training of Student Advisors and act as consultants to SAP.

Office of Career Services
This office is a multi-purpose career center for students to explore and implement career planning. Services range from career counseling and assessment to experiential programs and placement. From freshmen to senior years, students can take advantage of office services. The office is located on the lower level of the Auditorium Annex.

As the primary source of career counseling on campus, Career Services offers individual life planning sessions, standardized career assessments, and group workshops to help students who are questioning the choice of a career path or the outcome of their major.

Self-assessment and career research are encouraged by the staff. Research can be done in the Career Library in the office. Standardized assessment is offered to help students explore their interests, values and abilities, to find matches with specific occupations, and to plan for future research, internships, and part-time or summer employment.

Placement Activities in the office include group workshops, Career Forums, Career Expos and Job Fairs, individual job interviews, and the Senior Credential file. Workshops help with resumé writing, interviewing skills, dress-for-success, second interview and various other topics tailored to specific placement needs. Career Expos and Job Fairs bring recruiters to campus to discuss career opportunities and interview for new hires. A wide variety of employers also schedule on-campus interviews for students through the recruiting program.

The Office of Career Services administers two additional programs related to students and the world of work, the university's student employment service and the experiential learning program. Student employment offers an important way for students to earn money; therefore, it is discussed in the chapter on Expenses and Student Financial Services. Experiential learning, which offers a variety of opportunities for students to earn academic credit at the same time as gaining career experiences, is presented in the chapter on Special Learning Opportunities.

The Senior Registration file is an active listing of students' references and career interests. This file becomes an important part of Career Services' ability to match students with employment opportunities of interest to them.

Office of New Student Programs
The Office of New Student Programs is devoted to providing support to meet the special needs of first-year students. Its major functions include orientation programs for freshmen and transfers, early identification and intervention for high risk students, and a freshman seminar to help new students make transitions and become integrated into university life.

Through programs developed by this office, students are encouraged to get involved in campus activities and seek help from university support services. Parents of freshmen receive important information through a special orientation, Parent Day program, and newsletters. The Director of New Student Programs also serves as freshman class advisor. The Office of New Student Programs is located in the Foster Administration Building, room 209.

Office of Multicultural Student Services
The Office of Multicultural Student Services provides support services to the students of color at UMass Dartmouth. The program's primary goal is to increase the retention and success of students of color at the university. The Office also assists the university community better to meet, understand, and appreciate the needs of students of color. It provides programs and activities which bring all components of the student community together to experience the benefits of diversity.

For the individual student, the Office provides advice and support through counseling, mentorship programs, and scholarship and financial assistance. The Director serves as an advisor for the United Brothers and Sisters student organization. For more information, contact Director of Multicultural Student Services, Foster Administration Building, room 122.

Child Care Center
The Child Care Center, a licensed, professionally staffed early learning facility, is available for the children of students, faculty, and staff. To be eligible for enrollment, children must be between two years and nine months and six years old. The Center is located in Residence Halls, Phase IIIA. Hours are from 7:30 a.m. to 4:30 p.m. on all days when the university is in session during the academic year.

Work Study, Contract Learning, and volunteer opportunities are available at the Center. Students in these positions assist the professional staff, helping to maintain a staff/child ratio of 1:5 and ensuring diversity in curriculum. Additional information is available from the Director (508 999-8873).

Campus Center
The Campus Center is the heart of the non-academic activities and services of the University. It is the community "living and dining room" for all members of the University family: students, faculty, staff, alumni, and guests. Housed in the Campus Center are such services as the Campus Shop, Main Cafeteria, Sunset Dining room and Pub, Arcade, Billiards Room, Convenience Corner, Box Office, Copy Center, UMass Pass (debit card), Evening Cafe, Deli Shop, Snack Bar, and Information Center. Also housed in the Campus Center are 21 clubs and organizations, the Student Activities Office, the Radio Station, and the university newspaper. The Campus Center is open daily Monday-Friday.

The Main Auditorium is home to the University Theatre Company and used by many organizations for large concert hall type events. Community events are often held in the Auditorium, which is a fully equipped theater.

Groups that wish to use any of these facilities should obtain an application from the Scheduling Office in the Residence Dining Hall (building next door to the Campus Center). Please allow thirty days for reservations.

UMass Dartmouth Campus Store
The Campus Store stocks all textbooks required for classes plus recommended and supplementary hardcover books and paperbacks, general and art supplies, greeting cards, clothing, jewelry, the general catalog of the university, souvenirs, and gifts. Special order service is offered for hard-to-find books.

The Campus Store offers Apple and PC computers, auxiliary printers and software to full-time students at special educational prices. The Campus Store is located on the ground floor of the Campus Center. Daily hours are 8 am to 5 pm Monday through Friday. Special hours to serve evening students are posted at the Campus Store entrance.

In addition to cash transactions, the Campus Store accepts *VISA, Master Card, American Express,* and *Discover* and checks in the amount of the sale, with appropriate identification. Also, the Campus Store is integrated with the "UMass Pass" system which allows students, once funds are deposited, to make purchases and charge their accounts.

Student Organizations and Activities

The university encourages its students to engage in activities beyond those for their formal studies, as an important supplement to their education and as providing enriching and fulfilling experiences. At UMass Dartmouth, the variety of available activities is typical of a university, yet the opportunities for individual involvement resemble those of a smaller campus.

The many student organizations, clubs, and formal activities of the university include student government; social action, ethnic, and religious organizations; musical groups; publications; and clubs and societies based on the university's academic interests.
The *Student Handbook*, published yearly, describes these many organizations and activities and gives information about participation.

Office of Student Activities
The Office of Student Activities is the center of student activities and cocurricular programs. The office is responsible for providing assistance and resources in all aspects of program planning to student organizations and clubs. The coordinator of Student Activities coordinates the activities of over 100 student organizations and advises the Student Activities Board which sponsors university-wide programs.
The office also has a publicity staff that provides advertising services for any campus group or function.

Student Activities Board
The Student Activities Board is a volunteer, student-run organization dedicated to furthering the involvement of students in campus activities. It is advised by the coordinator of Student Activities.
The purpose of the board is to provide social, recreational, educational, and cultural programs for the community.
The Student Activities Board consists of seven committees that are responsible for a wide range of activities. Consult the *Student Handbook* for a full listing.
The Student Activities Board is located on the second floor of the Campus Center.

Religious Resource Center
Campus Ministry coordinates the religious activities and serves the spiritual needs of the university community. Clergy and ministers from major religious denominations provide opportunities for worship, spiritual direction and counseling, and special programs.
The staff welcomes persons of all creeds and will make referrals to resources of particular religious traditions in the greater community at the request of the individual. The office is located on the second floor of the Campus Center.

The university also hosts a Catholic Student Organization, UMass Dartmouth Christian Fellowship, Episcopal/Protestant Ministry, and Jewish Student Center.

Women's Center
The information and services offered by the Women's Center reflect the interests and concerns of women: health, social, and legal issues. It is located on the second floor of the Campus Center.
During the year, the Center sponsors a variety of workshops, discussions, and educational programs about relevant issues such as legislation affecting women, career choices, birth control, health, child care, and harassment.
Other services include peer counseling and support groups, career planning, information and referral, and advocacy.

The Center also has a resource lending library which contains over 600 books, references, and recent publications.
College credits (through Contract Learning) and work-study opportunities are available for students who wish to develop skills in community organizing, programming, writing, advocacy, research, media coordination, or counseling.

Returning Students' Organization
The Returning Students' Organization is run by and for people who have returned to college after a break in their formal education. The organization exists to meet the needs of returning students and to express those needs to the university
Membership is open to all who are interested in the unique concerns of those whose age and experience classify them as non-traditional students.
Activities and programs are both academically- and socially-oriented.

Gay and Lesbian Alliance (BiGaLA)
The Gay and Lesbian Alliance provides moral support for those men and women of the university community who need friends or confidantes and who desire the advantages of alignment with a support group.

MassPIRG
The Massachusetts Public Interest Research Group is a state-wide, non-profit and non-partisan organization directed solely by students. MassPIRG has two basic goals: to research and promote solutions to important social problems at the local, state, and national levels; and to teach students civic values through a variety of project and internship opportunities. As approved by the university's student government and Trustees, the valuable public-interest work of this organization is supported by a waivable fee.

Student Government
Students hold office in various organizations that govern the campus, and they serve on committees that determine policies and directions for many aspects of campus life.

The Student Senate is the major governing body and offers a forum for debate on matters of importance to the student body. The Student Judiciary, a system of courts or judicial agencies, provides students and student organizations with the protection of due process in all disciplinary matters. A student is also elected to the university's Board of Trustees.

Students serve on the Board of Governors, which makes policy for all activities of the Campus Center; as members of the Residence Hall Congress, the student-run government body of the residence halls; and on the Student Activities Board, which organizes the many student-sponsored events. The Senate also appoints students to membership on a wide range of university committees. Students are active, voting participants on many of the committees that recommend policies and regulate procedures for academic as well as social aspects of the university.

UMass Dartmouth Alumni Association
All current students should consider remaining active participants in the life of the university, through the UMass Dartmouth Alumni Association. Described here are those aspects of the Association's many activities that relate especially to current students.

The UMass Dartmouth Alumni Association is the largest volunteer organization on campus. It represents the interests of more than 30,000 former students in all 50 states and around the world. Serving as liaison between the university and its former students, the Alumni Association provides opportunities for people to get involved in shaping the future of their school.

This year, alumni contributors will help the Alumni Association provide money for scholarships, gifts, and grants for students, faculty and campus projects. During the Annual Fund phonothons, students call graduates to solicit gift support. Alumni also participate in recruitment of new students by hosting get-together sessions in various communities of the state.

Some of the on-campus activities the Alumni Association sponsors include:

- Homecoming Weekend
- Senior Class Pancake Breakfast
- Alumni Employees Pride Day.

On Homecoming Weekend, hundreds of alumni return to campus for events that include the Corsair Hall of Fame induction banquet, the annual Homecoming football game, and a post game party. Students are invited to attend most activities. Various classes and student organizations have reunions at different times of the year.

Students have the opportunity to talk with alumni about career choices throughout the year. During the year career panels bring alumni from various professions back to campus to tell students about their career paths and to offer students tips on how to enter the job market. The Alumni Career Network reference guide is available to students in the Office of Career Services. The guide gives students an opportunity to contact alumni directly for career advice or to arrange visits to job sites.

A description of the programs and activities of the Alumni Association is given in a subsequent section of this *Catalogue*.

A List of Clubs and Organizations

This list is presented to show the range and variety of student clubs and organizations. Refer to the *Student Handbook* for official details and contact persons.

Ethnic Heritage
Leitorado of Portuguese
Luso-American Student Association
Organization of Arab Students
The Taiwan, Republic of China (R.O.C.) Student Club
United Brothers and Sisters

Honor Clubs and Societies
Alpha Eta Theta Chapter—International History Honor Society
Delta Mu Delta
Eta Kappa Nu
Zeta Xi Chapter
Phi Psi
Pi Sigma Alpha
Mu Kappa Chapter
Sigma Delta Pi
Mu Phi Chapter—Spanish Honor Society
Tau Alpha Pi
Delta Delta Chapter
Theta Kappa Chapter of Sigma Theta Tau Nursing Honor Society

World at Large
B.A.C.C.H.U.S.
Labor Education Center
Mass PIRG
Student Alumni Association
Student Organization for Service
United Nations Association

Greek Chapters
Alpha Phi Alpha
Iota Phi Theta

Academic and Social
Accounting Association
American Association for Textile Technologists
American Association of Textile Chemists and Colorists
American Marketing Association
American Society of Civil Engineers
American Society of Mechanical Engineers
Biology Association
Chemistry Club
Computer Graphics Club
Computer Information Science Club
Economics Association
Equestrian Team
Finance Group
Fine Arts Committee
French Club
History Association
Human Resources Management Club
IEEE Computer Society
Inner Space Society (Scuba Diving)
Institute of Electrical and Electronic Engineers
International Business Association
Literary Society
Marketing Club
Massachusetts Student Nurses' Association (MaSNA)-UMass Dartmouth, local chapter of the National Student Nurses' Association (NSNA)
Mathematics Club
Omniad Agency
Outing Club
Philosophy Club
Poets' Circle
Political Science Association
Psychology Association
Sculpture Club
SECURE (Social Educational Committee United Against Rape and Exploitation)
SHARE Foundation
Ski Club
Society of Automotive Engineers
Society of Manufacturing Engineers
Society of Physics Students
Society of Women Engineers
Student Association for Medical Laboratory Science, an affiliate of the American Society for Clinical Laboratory Science
Student Chapter of the National Society of Professional Engineers
Theatre Company
Veterans' Club
WSMU—91.1 FM

Musical Organizations
Brass Ensemble
Chorus
Composers' Recitals
Concert Band
Guest Artist Series
Guest Lecturer/Master Series
Guitar Ensemble
Jazz Ensemble
Music Guild
Orchestra
Percussion Ensemble
Sound Pro-Electronic Studio
Stage Band
String Quartet
Vocal Ensemble

Student Publications
Phaedrus (graduate English newsletter)
Scrimshaw (yearbook)
Siren (magazine of the Women's Center)
Strands
Temper (student literary magazine)
Torch (student newspaper)

Intercollegiate Athletics
The university is a member of NCAA Division III. Colleges and universities in NCAA Division III place highest priority on the overall quality of the educational experience. In so doing, they seek to strengthen the integration of objectives and programs in athletics with academic and developmental objectives, and to assure the integration of athletes with other students. To that end, the university places special importance on the impact of athletics on the participants rather than on the spectator, and greater emphasis on the internal constituency (students, alumni, and special friends) than on the general public and its entertainment needs. The intercollegiate program is non-scholarship.

There are intercollegiate teams for men in the following sports: baseball, basketball, cross country, football, golf, ice hockey, soccer, swimming and diving, tennis, and track and field (indoor and outdoor). The intercollegiate program for women includes the following sports: basketball, cross country, field hockey, soccer, softball, swimming and diving, tennis, track and field (indoor and outdoor) and volleyball.

In addition, cheerleading is offered as a co-ed sport. Both men and women compete in club lacrosse.

Intramural
Intramural opportunity for all students is provided in basketball, cross country, flag football, softball, swimming, tennis, volleyball, water basketball, and co-ed softball.

Instructional
Non-credit courses are offered at convenient times for all interested students in the following: aerobics, step aerobics, modern jazz dancing, tennis, slimnastics, swimming, first aid, lifesaving, springboard diving, swim fitness, and CPR.

Facilities
Facilities are available for recreational use by students throughout the school year. They include the gymnasium, swimming pools, weight room, running track, practice soccer field, softball fields, tennis courts, and intramural fields. Equipment is also available. Schedules are printed each week in the *Torch* and posted in the gymnasium.

Conference Memberships
For women, the university is a member of the National Collegiate Athletic Association (NCAA), Eastern College Athletic Conference (ECAC), the Eastern Association for Intercollegiate Athletics for Women, the Massachusetts Association of Intercollegiate Athletics for Women, New England Intercollegiate Track Association for Women, New England Women's Intercollegiate Swimming Association, and Little East Conference.

For men, the university is a member of the National Collegiate Athletic Association (NCAA), Eastern College Athletic Conference (ECAC), New England Intercollegiate Golf Association (NEIGA), New England Lawn Tennis Association (NELTA), New England Intercollegiate Soccer League (NEISL), New England Intercollegiate Swimming Association (NEISA), New England Intercollegiate Amateur Athletic Association, New England College Athletic Conference (NECAC), Little East Conference, and New England Football Conference.

Residence Halls and Student Apartments
The university has four residence halls housing 1,300 students and two townhouse clusters housing over 800 students.

These residence halls have 10 and 12 person suites with double and single rooms clustered around a common living room/kitchenette. One or two bathrooms are included in each suite. Recreation, mail and laundry facilities and hall director quarters are part of each building. All residents use the dining hall located near the campus center.

Apartment-style living is found in the Cedar Dell student apartments, which consist of 136 five and six person townhouse style apartments housing students in single rooms. Recreation, mail and laundry facilities are available in two student centers. The Cedar Dell Village environment is more autonomous than in the residence halls, and priority for this housing is given to upperclass students.

Office of Housing and Residential Life
The Office of Housing and Residential Life, located in Residence Hall IIIA, is responsible for all phases of resident living on campus. This includes social, cultural, and educational programming, custodial and maintenance, discipline, room assignments, and, in general, the promoting of a living/learning environment in on-campus housing. The residence halls are more than just places to eat and sleep; they provide the opportunity for students to become part of a community. The Resident's Handbook gives additional information.

The staff of this office also administers the housing needs of summer students and conferences.

Dining Services
A la carte dining services are available through three cafeterias, the Sunset Room for table service and the Magic Oven Cookie Shop in the Campus Center. In addition, the Corsairs Cove serves fresh pizza and sandwiches on the ground floor of the Residence Dining Hall. A student may contract from one of four board plans which range from 10 to 19 meals per week, including brunch and dinner on weekends, served in the Residence Dining Hall, or may pay a single meal rate which includes unlimited seconds. Automatic vendors are conveniently located for off-hour service. Arrangements for special functions, meeting space and board plans may be made with the University Functions/ Scheduling Clerk in office on the ground floor of the Residence Dining Hall.

Availability
Any student of the university may request on-campus housing, regardless of the distance from the campus to his or her permanent address. Students who receive on-campus housing may continue to live on campus through their period of study, if they remain in campus housing and in continuous enrollment.

Student Health Office
The Health Office is located in Phase 3A Residence Halls. During the academic year, a physician and nurse practitioner(s) are on duty each class day. Two registered nurses, a consulting dermatologist and a consulting nutritionist are also on staff. This office is equipped to handle most health related problems a student might encounter while at UMass Dartmouth. Referrals are made to community resources when appropriate.

All services are available to all students through the Student Health Fee.
The Health Office is concerned with the total well-being of each student and committed to health education and disease prevention. Also, Health Services contracts for student health insurance. The Commonwealth of Massachusetts requires university students to have comprehensive health insurance, and information regarding coverage is included with each student's tuition statement.

Safety
Students should report any personal health conditions such as allergies, pregnancies and heart or respiratory problems, which would make them a high risk in certain laboratories or classes, to the Health Office and appropriate faculty. Safety is monitored carefully in classes and laboratories in chemistry, biology, medical laboratory science, physics, ceramics and painting that may contain or use chemicals, viruses, silica, asbestos, x-ray, radiation or animals, which under normal conditions are harmless but may affect persons with high risk conditions.

Students should report to the Health Office, the Office of Planning and Plant, the Campus Police, or the appropriate department chairpersons anything on campus that could be hazardous.

Department of Public Safety and the Crime Prevention Unit
The university's Department of Public Safety maintains a 7-day, round-the-clock security operation for the campus. It is dedicated to the safety and security of all members of the campus community and their visitors. Department of Public Safety provides an on-campus escort service to anyone who requests this service.

In addition, emergency telephones have been placed in key locations across the campus, backed up 24-hours a day by the Department of Public Safety.
An informational booklet, "A Guide to Campus Safety Services," is available from the Department of Public Safety and the Office of the Vice Chancellor for Student Services; this booklet describes the safety and security policies and program and gives systematic information about security and crime on campus.

An escort service is provided from 6 pm until 11 pm Sunday through Thursday for the safety of anyone walking on campus. At all other times, the University Police will escort individuals when availability permits call 8107 or 8108. The Crime Prevention Unit offers crime prevention seminars, services for identification of personal possessions, a rape crisis advocate, and guidelines for many aspects of safety and security.

If members of the university have concerns about date rape and sexual assault, theft, drug and alcohol abuse, street crime and violence, they may call Dennis Tucker, Crime Prevention Officer, Department of Public Safety at x8770.

Parking on Campus
All members of the university community wishing to use their cars on campus must register with the Department of Public Safety and receive a parking sticker. Residence students may keep a vehicle on campus.

Parking decals are available at Mass Pass located in the campus center. Decals for handicapped parking will be issued at the Department of Public Safety; all wishing permits for handicapped parking must register there.

Alcohol and Drug Education Program
The Alcohol and Drug Education Program provides alcohol and drug education counseling, intervention, and referral services to students, faculty, staff and administrators. The program offers education, counseling, and referral.

The education program provides orientation for incoming students about alcohol and drug-related issues and university policies. It also offers workshops for residence halls staff regarding assessment of alcohol-troubled students. The counseling program provides individual and group counseling sessions, and regularly scheduled meetings of Adult Children of Alcoholics and Alcoholics Anonymous. The referral program provides liaison with local alcohol and drug treatment programs and utilization of other university counseling, health and academic resources.

A part-time alcohol-drug education coordinator manages these programs.

Catalogue Commitments

All rules are subject to change in accordance with existing and hereafter adopted university policies. Official changes will be clearly stated in university policy documents.

Notations may indicate when specific regulations became or will become effective. If there is no notation, regulations are now fully in effect.

The catalogue which is in effect when a student first enters the university (as a regularly admitted student) is generally the one that will govern that student's course and program requirements. However, circumstances may occur that require modification of this principle.

Changes may occur in the requirements for academic programs or regulations. Whenever possible, such changes will be phased in, with the class effected and year when the changes first apply being stated. If a formerly required course or courses should no longer be offered, substitutions will be considered in individual program planning; the institution will attempt to respond flexibly in such cases. In the rare event of an academic program being phased out, those in the program will be given a reasonable amount of time to complete the requirements. Neither transfers in nor new admissions will occur.

For students who return after a period of withdrawal or dismissal (in other words, who do not maintain continuous registration or who leave without a granted leave of absence), the governing catalogue will become that which is in effect when they are re-admitted. Individual requests to be allowed to revert to the earlier catalogue will be reviewed by the dean of the student's college.

Students may wish to change their majors a year or more after they join the university. Such students may be refused the option of using the version of the major that was listed in a former catalogue, being instead subject to requirements of a newer version. Students who entered under one governing catalogue may prefer the requirements in a subsequent catalogue. They may request permission to have that newer catalogue apply to them; in such cases, however, they shall then adopt *all* requirements from the newer catalogue. Ten years is deemed sufficient time for a part-time student, in continuous registration, to complete a degree. If a student takes more time than this, the university will reserve the right to impose the requirements of a later catalogue. Because each edition of the *General Catalogue* may not be prepared significantly in advance of its distribution and the *Catalogue* is not re-edited every year, changes may go into effect before the next edition is printed. Such changes will be clearly stated in university policy documents.

Issues concerning the catalogue that governs for individual students are resolved at the level of the college dean.

Course Credits
Courses are the basic units of teaching at UMass Dartmouth. A course is a segment of an academic or professional field which provides insight and understanding of those topics, skills, and approaches to knowledge which are determined by the University to be important to students' educational development, personal growth, and/or career preparation.

Each course at UMass Dartmouth carries the number of credit hours specified in the course description. Lecture/discussion courses ordinarily meet three hours per week in each semester. There is, however, a wide range of hour and credit arrangements, ranging from one-credit laboratories to 15-credit practice teaching courses. Consult the chapter on "Other Learning Opportunities" for further variations.

Course Load
Full: An undergraduate student is deemed to be in full-time status during a semester if carrying 12 or more credits. A graduating senior in the final semester may be considered full time with fewer credits.

Maximum: Undergraduate degree candidates who wish to register for more than 18 credits in a semester must obtain approval of the appropriate dean. A student may accumulate a maximum of 30 credits in excess of degree requirements.

Course Level and Number System
Courses are listed by number and title. Courses are numbered according to the following system:

100-level—introductory courses

200-level—intermediate courses

300/400-level—advanced and specialized courses normally requiring prerequisites; including seminars, honors, practica, theses, and independent study

500/600-level—graduate courses. Open to undergraduates only with permission of the instructor.

Courses may be offered that do not give credit toward graduation but count in calculating a student's load (this is called "administrative credit"). Usually, these courses are numbered 100 or lower (e.g., English 100 and Math 100).

Transfer of Credit
The awarding of credit for courses taken at other institutions prior to admission is approved by the dean of the appropriate college or a designee. Transfer of credits toward the degree will be limited to a maximum of one-half of the number for the UMass Dartmouth degree program. Credits applicable to a specific degree program should be so indicated by the Department. Students entering with degrees from Massachusetts community colleges will be awarded credit according to the Transfer Compact.

A student registered at UMass Dartmouth who wishes to enroll in courses in another university or college for transfer credit to UMass Dartmouth should have such courses approved in advance by the appropriate department chairperson and college dean in order to insure the transferability of such credits. A form is available for this purpose, and assistance may be sought at the Academic Advisement Center.

On completion of the courses, an official transcript should be forwarded to the UMass Dartmouth Registrar. A C- grade is the minimum acceptable grade for receiving transfer credit at UMass Dartmouth. Transfer coursework for which credit is given will be recorded on the student's permanent record card without a grade designation. It will not be calculated in the student's grade point average.

Waiver of Courses
If students demonstrate proficiency in areas that are part of their degree program of study and have the approval of the faculty specializing in that area, they may petition through the department chairperson to the dean of the appropriate college to have the course(s) for which the proficiency is proven (by examination, portfolio review, successful completion of a previous program of studies for which credit may not have been received, etc.) waived as a requirement for the fulfillment of their degrees. When a course is waived as a degree requirement, the student is still responsible for the successful completion of a number of credits equal to those assigned to the waived course.

Repeating of Courses
Students may repeat individual courses once, but only if space is available and with the consent of their department chairperson and their advisor. Only the appropriate UMass Dartmouth course may be used; no course taken at another institution can replace a UMass Dartmouth course's grade. Only the repeat course grade (whether higher or lower) shall enter into calculation of the cumulative grade point average presented for satisfaction of a particular degree requirement. However, all courses attempted by a student will be part of the permanent record.

Registration
Registration is the process by which students enroll in courses each semester. Returning students are responsible for registering during the established registration period. New and transfer students and readmitted students register according to the most recent instruction from the Office of University Records. Registration will not be con-sidered effective until all financial obli-gations to UMass Dartmouth are met.

Add/Drop
Up to the end of the first week (five class days) of the semester, a student may officially Add courses or Drop courses without record. In the case of courses that meet only once a week, the Add/Drop period shall be two weeks. No one shall enroll for Contract Learning, Independent Study, and Honors Theses credits after the second week (ten class days) of the semester without the permission of the appropriate dean or a designee.

Withdrawal from Courses
A student who withdraws from a course after the Add/Drop period and up to the completion of the seventh week of the semester shall receive a W grade. A W grade does not affect a student's G.P.A.

After the completion of the seventh week of the semester, a student who withdraws from a course shall receive a grade of WF or WP as appropriate. More than 24 credits of W, WP, or WF makes the student subject to dismissal from the University through the action of the Dean of the student's College. Grades of WP and WF do not affect a student's G.P.A.

A student may officially withdraw from a course not later than the last scheduled day of classes for that semester as specified in the academic calendar.

Special Student Registration

Special Student status allows those not seeking a UMass Dartmouth degree to register for undergraduate classes of the university on a space-available basis. (For graduate special student registration, see the Graduate School regulations.) The following types of people are welcome to request undergraduate special student status:

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Students not seeking a degree who wish to take courses for personal and professional reasons. At least a high school diploma or GED must have been received in order for registration to occur. Students must each submit proof of having received a high school diploma or GED, or an associate's or post-baccalaureate degree, before grades are issued at the end of the semester of registration as a special student.

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Visiting students matriculated at another college. Before registration, an official letter of authorization should be provided from the student's home institution verifying that the student is in good standing. International students seeking a degree and in good standing at another university and holding the F-1 visa from that institution may also request registration as visiting special students at UMass Dartmouth.

•

Exchange students studying here by terms of an agreement between UMass Dartmouth and the home institution in another country, pursuing a degree at the home institution. Exchange students receive formal acceptance to the exchange program and are registered in special student status.

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Persons pursuing one of the certificate programs of the university, listed in the *General Catalogue* chapter on Interdisciplinary and Special Programs. Because certificate students do not receive a formal degree, they are registered as special students.

The university's certificate programs offer various opportunities for advisement, program planning, and registration for courses. Participants in certificate programs apply for and formally receive acceptance, and they must meet formally expressed conditions for completion of the program and award of the certificate.

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High school students. Exceptional high school students may be accepted as part time special students. High school transcripts and letters of recommendation must be provided by the student's high school counselor or principal prior to registration. Such students may study here under the Commonwealth's Dual Enrollment program, described in the chapter on Admissions.

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Applicants for admission to UMass Dartmouth who were qualified but were denied admission because of space limitations.

The following are not accepted as Special Students:

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Applicants who were denied admission to UMass Dartmouth because they did not have the necessary qualifications.

•

Students who have been dismissed by UMass Dartmouth or any other college or university, for at least one semester following the dismissal. Such dismissed students may be recommended by the dean of their college for admission as special students, after a semester away, with conditions for readmission as regular students specified and with an educational plan designed to assist in the amelioration of past deficiencies. (Others may be recommended to apply for re-admission as regular students after a semester or more away.)

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International students who would need F-1 visas.

Students may remain as special students at UMass Dartmouth for a maximum of 30 credits. (The 30-credit limit does not apply to senior citizens.) After completion of 24 credits, the Registrar's Office will inform the student that a maximum is being approached. Any special students who later decide to pursue a degree should seek admission at an early time to guarantee adequacy of academic advisement and progress without an interruption.

First-time special students will go to the Admissions Office for approval of an application to register. Returning special students may request to register at the Registrar's Office. Special students are expected to receive approval of their course selections from an academic advisor.

Degrees and Majors
UMass Dartmouth offers the undergraduate degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science. (See Graduate Catalogue for graduate offerings.) Each degree requires being accepted into and fulfilling the requirements of a major. By being accepted into and fulfilling the requirements of two majors, a student may graduate with one degree and a dual major.

Major Requirements
In order to graduate from UMass Dartmouth, a student must declare and successfully meet all requirements for a specified major within a recognized department, or an approved interdepartmental major.

Specific requirements for each major beyond these general requirements are included in each department's section of this catalogue.

While some programs require declaration of a major early in a student's college career, all UMass Dartmouth students shall be required to declare a major no later than registration period for the Fall semester of the Junior year. Formal declaration shall be made to the appropriate chairperson, or as the case may require (e.g., multidisciplinary studies), the dean.

Students whose overall grade point average is above the dismissal grade point average shall be allowed to declare a major. (Some majors require a minimum GPA.) Students whose overall grade point average is below the dismissal grade point average shall be candidates for dismissal.

Each major shall consist of at least 30 credits in appropriate courses carrying departmental approval.

A 2.0 minimum grade point average in the major shall be required for graduation.

Most majors require a seminar equivalent or special individual project. Such a project may be incorporated in a specific course or carry separate credit.

Individual departments may exceed these requirements for the major.

Minor Requirements
Specific requirements for each minor beyond these general requirements are listed in this catalogue under departments offering minors.

Approved minors consist of at least 18 credits, of which 9 must be at the upper division level. Individual departments will designate their upper division courses. The same course may count both for minor and for distribution requirements.

Any degree candidate who has earned at least 54 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point average in the major, may request from the department in question admission to a minor.

Successful completion of a minor will be so noted on the student's transcript.

A department offering a minor may establish other specific requirements.

Distribution Requirements
UMass Dartmouth also requires students to complete general distribution requirements according to the degree sought. These distribution requirements vary among colleges and majors and with year of graduation. They are described in the college and department chapters of this catalogue.

Cumulative G.P.A. Requirement
All work required in the student's major field of concentration must be satisfactorily completed. A cumulative grade point average of not less than 2.0 for all credits submitted for the degree must be attained. In addition, the cumulative grade point average for courses taken in the major shall be set by the department at not less than 2.0. A student may take additional credits not submitted for the degree.

Residency Upper-Level Requirements
At least 60 course credits must be satisfactorily completed at UMass Dartmouth. It is expected that students will spend their junior and senior years at UMass Dartmouth. Students may be granted permission by the appropriate chairperson and the college dean to earn up to 30 credits at another institution during their junior and senior years.

At least 30 course credits in advanced and specialized courses—courses numbered 300 or higher, excluding contract learning—must be satisfactorily completed at or under the sponsorship of UMass Dartmouth.

Department Requirements
Academic requirements more restrictive than or in addition to university requirements may be established for any major or program.

Academic Advising

Each degree candidate will be assigned a faculty advisor. Students who have declared a major will be assigned an advisor within their major. It is the responsibility of each department chairperson to post annually the faculty advising assignments for majors in the department.

The dean of the appropriate college will be responsible for coordinating the assignment of faculty advisors to students who have not declared a major.

Students registered as Liberal Arts Undecided majors receive academic advising at the Academic Advising Center. The Center is also equipped to help any student of the university with academic problems, especially those associated with changing or planning to change majors.

All students should see their advisors well in advance of registering and receive approval of their next semester's course schedule. Advisors will inform each advisee of distribution and major academic requirements. However, the student, not the advisor, is ultimately responsible for seeing that his or her program fulfills any and all requirements for the degree. The advisor will also discuss related educational concerns, such as graduate schools and job opportunities.

The advisor will receive a copy of the student's grades following each semester. The advisor can call a conference with the student at any time, with reasonable notice.

Any college or department may formulate additional advising procedures for its majors.

Grades and Grading System

Grades are determined and assigned by Instructors according to the guidelines indicated below. Each student's academic achievement and fulfillment of degree requirements are reflected in the transcripts which are issued at the end of each semester.

The UMass Dartmouth grading system includes plus and minus grades which are used in computing grade point averages.

The grading system includes the following letter grades and quality points:

A Excellent
Quality Points:

A+	4.0
A	4.0
A-	3.7

B Good
Quality points:

B+	3.3
B	3.0
B-	2.7

C Satisfactory
Quality Points:

C+	2.3
C	2.0
C-	1.7

D Marginal
Quality Points:

D+	1.3
D	1.0
D-	0.7

D- is the lowest grade acceptable for credit.

F Unsatisfactory
Quality Points: 0
Failure to meet minimum standards either on the basis of work submitted or not submitted. No credit awarded.
0 quality points awarded for purpose of computing G.P.A. credits as indicated in course description.

F(I)
Quality Points: 0
An F assigned for failure to complete a course within a year after the assignment of an I notation.

W
Official withdrawal by the student from a course after the Add/Drop period, and up to the completion of seventh week of the semester, recorded by a W grade. A W grade does not affect a student's G.P.A.

WP
Official withdrawal by the student while passing after the completion of the seventh week of the semester and before the close of business on the last day of classes for the semester. No credit awarded. Not included in grade point average.

WF
Official withdrawal by the student while failing after the completion of the seventh week of the semester and before the close of business on the last day of classes for the semester. No credit awarded. Not included in grade point average.

CR
A passing grade. Credit given upon satisfactory completion of a contract under Contract Learning Program. Not included in grade point average. This grade may also be assigned as a passing grade under grade appeal procedure.

NC
A failing grade. Under Contract Learning Program no credit awarded. For purposes of computing G.P.A. credits as agreed upon by contract.

I
Work Incomplete. May be given only in exceptional circumstances at the instructor's discretion and at the student's request made no more than 48 hours after the final examination or last class. The student must be passing at the time of the request or must be sufficiently close to passing for the instructor to believe that upon completion of the work the student will pass the course. If the work is not completed within a year of recording of the I, the grade will become an F(I). "I" grades cannot be changed to W, WF, or WP.

P
Passing. The P grade is recorded for grades of A, B, C, or D, under the pass-fail option. The grade of P may also be used for satisfactory completion of courses that do not carry credit (e.g., English 100). Not figured in grade point average.

IP
In Progress. Notation used in special cases to indicate that academic progress covers more than one term; e.g., that a grade will be assigned on the completion of the task involved. The "IP" notation is replaced upon receipt of the official grade. Until or unless replaced by an official final grade, the notation "IP" will remain on the transcript.

NR
Grade not reported by instructor at time of grade processing.

F
Under pass/fail option. See "F" definition above. No credit awarded.
0 quality points awarded, for purposes of computing G.P.A. credits as indicated in course description.

AU
Audit. Registration and permission of Instructor needed for auditing, submitted to the University Records Office no later than the end of the add-drop period. This notation is used when no examinations, evaluation, or credit are involved.

Pass/Fail Option
Sophomores, Juniors, and Seniors may select a Pass/Fail Option for one course per semester (up to a maximum of four courses), except in the following cases:

- any course specified as a degree requirement;
- any course in a student's major, unless the department rules otherwise;
- any course used to satisfy the distribution requirements of the degree program in which the student is enrolled.

This option is not available to graduate students.

Selection of Pass/Fail Option
Students will be given through the first five weeks of each semester to exercise the option, which shall then be irrevocable. Only the student and the Registrar shall know that the option has been selected. Grading practice, vis-a-vis faculty and students, will be identical to the usual marking procedure.

The burden of selecting a proper course under Pass/Fail rules shall be borne by the student. Any doubt whether a course is a degree requirement and so not eligible for Pass/Fail shall be resolved by consultation with the Dean of the College in which the student is enrolled. If the course chosen *is* a degree requirement, then the student will be subject to the usual marking practices.

Pass-Fail Grading
Grading practices under this option are as follows:

- A Pass/Fail student who does passing (i.e., A through D-) work in a course shall be given a grade of P (Pass). Passing a course shall earn a student graduation credits but shall not be counted in the cumulative average. Failure in a course will be 0 quality points and will be counted in the G.P.A.
- The Registrar shall be required to keep a separate record of the grades obtained in the Pass/Fail courses and will issue this record only on the request of the student.
- The transcripts will contain the Pass/Fail notation, but the grade actually achieved will be kept on file in the Registrar's Office.

Scholastic Standing
A grade point average (G.P.A.) is determined for each student at the end of each term's program of courses. A G.P.A. is computed by multiplying the credit of each UMass Dartmouth course by the quality points of grade received in that course. The sum of the above is then divided by the total number of credits in courses in which the student enrolled. Grades of P, CR, I, W, WP, WF, IP, AU are not included.

A cumulative grade point average is the average of all the UMass Dartmouth grades other than of P, CR, I, W, WP, WF, IP, AU, of the student. Grades of F, F(I), and NC earn zero quality points. Such grades are included in the student's average according to the number of credits specified in the course description.

Change of Grade
Whether for a one- or two-semester course, the grade received at the end of each semester stands as the final grade for the semester. For certain special coursework (honors, research programs, etc.) in which it is extremely difficult to assess academic progress on the basis of one term, the notation "IP" (In Progress) is acceptable on an interim basis. The "IP" notation is replaced upon receipt of the official grade.

The statute of limitations on all grade change requests is one year from the date that the grade was placed on the student's record. In extreme and exceptional cases, on request of the student and recommendation of faculty, the instructor and/or the appropriate college dean may authorize changes in grades given over one year from the date the grade was assigned.

Grade Appeal
Grade appeals are pursued through a formal process, which is conveyed in the university's Grade Appeal Policy. A revised policy is now in effect for grades earned Fall 1992 and beyond. Copies of the full policy and an outline of procedures are available in the offices of the college deans, at the Academic Advising Center, and at the Office of Academic Affairs. The following paragraphs summarize the grade appeal process.

A faculty member is identified to act as a Grade Appeal Facilitator, who will offer advice to both students and faculty about how to prepare for and conduct their respective roles in the process. The present Grade Appeal Facilitator is Dr. Charles White, Professor of English.

Only final course grades (including WF) may be appealed. For the purposes of appeal a final grade may be alleged to be (1) unfair because of the unequal application of grading standards within the course section, or (2) in error because of a clerical or computational error. An appeal may be pursued only if there is a valid basis and evidence for it, and the collection of evidence to support an allegation is the obligation of the student. Students will attempt to resolve differences first through informal and amicable discussions with the faculty member or through the good offices of the Grade Appeal Facilitator.

Formal appeals are addressed in writing to the Grade Appeal Facilitator and must be initiated within the first 20 class days of the following semester, excluding summers, or within 25 working days from the date that the grade report is mailed out from the Registrar's Office, whichever is later.

Responsibility for initiating an appeal rests with the student who received the disputed grade. Responsibility for developing and presenting evidence that the grade given is unfair or in error rests with the student making the appeal.

Academic Dishonesty
A student found guilty of academic dishonesty is subject to severe disciplinary action which may include expulsion from the University. Refer to the Student Judicial code for due process.

Students are advised that violations covered by the concepts of academic dishonesty and plagiarism may occurin a variety of settings or contexts beyond those of the traditional classroom, laboratory, library, or place where writing is being done.

An important example involves computer data and programs, as covered in the Code of Responsible Computing at the University. Access to the university's computing facilities and information resources is a privilege granted to university students, faculty, and staff. Unauthorized access to information stored on a computer and unauthorized use of university computing resources are direct violations of the university's standards for ethical conduct. The University of Massachusetts Dartmouth treats abuse of computing facilities, equipment, software, information, networks, or privileges as seriously as it treats other violations of its codes of conduct.

Furthermore, the Code of Responsible Computing at the University reminds students that computer-assisted plagiarism is still plagiarism. Unless specifically authorized by a class instructor, all of the following uses of a computer are violations of the university's guidelines for academic honesty and are punishable acts of plagiarism: copying a computer file that contains another student's assignment and either using it as a model of one's own assignment or submitting it as one's own work; sharing the computer files or programs involved, and then submitting individual copies of the assignment as one's own individual work; knowingly allowing another student to copy or use one's computer file(s) and to submit that file, or a modification thereof, as his or her individual work.

Plagiarism
All students entering UMass Dartmouth are expected to maintain high standards of academic integrity and scholarly practice. Plagiarism, whether as a result of failure to understand proper scholarly procedure or as an act of intentional dishonesty, is not allowed.

Plagiarism is defined as an attempt by a student to represent the work of another as his or her own. This includes copying the answers of another student in an examination; submitting or copying or substantially restating the work of another person or persons in an oral or written work without citing the appropriate source; and collaborating with someone else in an academic endeavor without acknowledging that contribution.

Penalties assessed by the faculty member for plagiarism generally consist of a reprimand, a lowering of a grade or failure in the course in which the alleged plagiarism took place, a requirement to resubmit the work in a more acceptable form, or any combination of these.

If the instructor considers the offense especially serious, instead of assessing a penalty, he or she may refer the matter to the UMass Dartmouth Student Judiciary. When a student is penalized for plagiarism, it shall be understood by all parties concerned that the student has the right to appeal the instructor's decision to the University Court.

Class Standing
Freshman: Up to and including 30 UMass Dartmouth credits or 1/4 of graduation credit requirements in the student's degree program.

Sophomore: From 31 to 59 UMass Dartmouth awarded credits or 1/2 of graduation credit requirements in student's degree program.

Junior: From 60 to 89 UMass Dartmouth awarded credits or up to 3/4 of graduation credit requirements in student's degree program.

Senior: More than 89 UMass Dartmouth awarded credits (or, more than 3/4 of graduation credit requirements in student's degree program).

The university's computer system will identify students' class standings by credits completed. Students may request a calculation by hand.

Dean's List
Following the completion of each semester, full-time students who have completed at least 12 course credits, excluding courses taken under the Pass-Fail option and Contract Learning, and who have no "I" grades outstanding for that semester, are considered for the Dean's List and the Chancellor's List. Those who achieved a grade point average of at least 3.2 will be named to the Dean's List for that semester. This accomplishment will be noted on the student's transcript.

Chancellor's List
Under the same limitations as for the Deans' List, those who achieve a G.P.A. of 3.8 or better for a given semester will be named to the Chancellor's List rather than the Deans's List. This accomplishment will be noted on the student's transcript.

Graduation with Distinction
Students are eligible for graduation with distinction provided they achieve a cumulative grade point average in their UMass Dartmouth credits of:

3.200 to 3.499	Cum Laude (Distinction)
3.500 to 3.799	Magna Cum Laude (High Distinction)
3.800 to 4.000	Summa Cum Laude (Highest Distinction).

Graduation with "Cum Laude," with "Magna Cum Laude," or with "Summa Cum Laude" is inscribed on the student's diploma. Graduation with distinction is based on all UMass Dartmouth work including the final semester.

University Honors Programs
University-wide honors activities are available to full-time undergraduate students who demonstrate high academic achievement. University Honors Programs are designed to:

- provide a forum for the discussion of topics of academic interest along interdisciplinary lines;
- offer departmental and interdisciplinary honors courses; and
- recognize those students whose academic accomplishments are outstanding.

Students with an excellent academic record receive an invitation also to participate in the Honors Colloquium, an Honors Essay Contest, and other events that recognize the achievement of honors students.

For further information contact the office of University Honors Programs located in Room 339 of the Group I Building, x8277.

Students with a minimum G.P.A. of 3.2 may enroll in available introductory level honors sections of courses such as history, sociology, psychology, English, chemistry, philosophy, biology, and business. Students applying for admission to UMass Dartmouth with test scores and/or high school records which predict university performance at honors level will also be invited to enroll in honors sections, and nominations from high school counselors or teachers of their creative, high-potential students are welcome.

For continuation in the program students must maintain a minimum G.P.A. of 3.2 in honors courses and 3.2 in all course work. Those who complete the full University Honors Program earn the designation ***Commonwealth Scholar***. Required are:

- completion of 15 credits of 100- and 200-level honors courses outside the student's major
- completion of HON 201 Multidisciplinary Approaches to Scholarly Research and Writing
- completion of 6 credits of junior level honors course work in the student's major, in conjunction with a department's honors curriculum or via an honors contract through the University Honors Program
- completion of 6 credits in the senior year earned for an honors project or thesis, in conjunction with a department's honors curriculum or via honors thesis guidelines of the University Honors Program.

Departmental Honors
Several Departments offer to qualified students a special curriculum leading to Honors in the major field. Students satisfactorily completing the departmental requirements for Honors in the Major will, upon graduation, have their diplomas so inscribed and be so designated on the graduation program. Departments will notify all eligible candidates by the end of their Junior year. Potential participants shall follow departmental guidelines for entry into the Honors program.

Participants shall have a minimum G.P.A. of 3.0 for all course work. Departments may require higher minima and, in addition, may set minimum G.P.A.'s in the majors. G.P.A.'s will normally be determined after the fifth semester.

Departmental Honors Programs will include an appropriate end product, normally a project or thesis. A maximum of six credit hours may be awarded for completion of the project/thesis. Departments shall develop procedures for approval of participants' proposals. A faculty sponsor or honors advisor shall advise an honors candidate, according to departmental or program guidelines. An evaluation committee, which shall be multidisciplinary in nature, shall be established according to departmental or program guidelines. This committee shall evaluate the completed honors project/thesis and determine if the work meets standards for honors.

Academic Probation

Any student having a cumulative grade point average below 2.0 after the completion of 30 credits (including transfer credits) will be placed on academic probation and will be so notified by an appropriate notation on the transcript. The purpose of academic probation is to alert the student to the possibility of academic dismissal as described in the section below. It will be the student's responsibility to take remedial action after this warning.

Extracurricular Participation

Students who are not degree candidates or who have been placed on academic probation are not allowed to serve on University committees, participate in student government organizations, or represent the University in intercollegiate athletics.

The Academic Eligibility Review Committee, a committee of faculty chaired by the Associate Vice Chancellor for Academic Affairs, reviews requests for a waiver of these criteria. The committee considers cases in which a student's performance is close to the required standard and where recent good progress has been shown.

Athletics

The director of athletics may recommend to the Council of Academic Deans academic requirements more restrictive than or in addition to University requirements if such changes are necessary for membership in Intercollegiate Associations.

Student Organizations

A student group which governs a particular student activity, with the approval of the Dean of Students, may require academic performance of its student members which is greater than that which is required by the university for remaining in good standing.

Academic Dismissal

A student shall be subject to dismissal for unsatisfactory academic performance through the action of the dean of the student's college. An "unsatisfactory academic performance" is one in which a student's cumulative grade point average falls below the following standards:

UMass Dartmouth-Awarded Cumulative Credits	G.P.A. Requirements
20	1.350
25	1.400
30	1.450
35	1.500
40	1.550
45	1.600
50	1.650
55	1.700
60	1.750
65	1.775
70	1.800
75	1.825
80	1.850
85	1.875
90	1.900

"UMass Dartmouth-awarded credits" includes all transfer credits, CLEP credits, prior learning credits, credits awarded while in Study on Exchange status, and all UMass Dartmouth attempted credits. UMass Dartmouth attempted credits are those for which a grade has been entered, excluding those for which the notation is W, WP, WF, I, AU, IP and NR. UMass Dartmouth attempted credits are so designated on the UMass Dartmouth transcript. Transfer credits, CLEP credits and prior learning credits appear in the UMass Dartmouth transcript as the total under "transfer credits." At the time of dismissal the conditions of readmission shall be stipulated by the appropriate college dean in consultation with the department chairperson.

No student will be dismissed after only one semester at UMass Dartmouth. More than 24 credits of W, WP, or WF makes a student subject to dismissal. A student shall be subject to dismissal who accumulates more than 30 credits in excess of degree requirements.

Financial Aid Standards

The following minimum schedule of academic credits must be completed:

Academic Years Completed	Attempted credits	Number of credits successfully completed
1	30	15
2	60	30
3	90	51
4	120	72
5	150	96
6	174	120
7	184	130

Upon completion of 60 credits, students with a cumulative G.P.A. below 2.0 in all UMass Dartmouth and Continuing Education coursework must in *each* subsequent semester maintain a semester quality point average of at least 2.0 to continue to receive financial aid, until the cumulative G.P.A. has become 2.0 or better.

Satisfactory progress standards may be waived for students who can demonstrate mitigating circumstances, such as extraordinary physical, psychological, or medical problems. Each case will be reviewed, as appropriate, by the Vice Chancellor for Student Services or designee; or by the Dean of Continuing Education or designee. A one-time, one-year probationary period of eligibility for financial aid will be extended to students who transfer from one degree program to another at UMass Dartmouth, from another institution to UMass Dartmouth, or from the day to evening divisions at UMass Dartmouth, when the program from which they transfer has a lower requirement than their new program.

Change of Academic Major or College
Students requesting a change of major will be expected to meet entrance requirements of the new major. Access to majors may be limited.

Requests for change of academic major or college must be approved by the department chairpersons involved and the dean of the college to which the student is transferring. The change of major form is obtained in the Registrar's Office and the Academic Advising Center.

Leave of Absence
A student may request of the appropriate college dean a leave of absence for a period no longer than two calendar years. Students on leave of absence may return within the stipulated period by writing to the college dean at least four weeks prior to the first day of classes in the semester of return. The college dean may specify an earlier notification deadline in limited enrollment programs. Students on leaves of absence who exceed their stipulated time on leave will be considered to have withdrawn and so will be subject to the readmission procedures, below.

Withdrawal from the University
A student who wishes to withdraw from UMass Dartmouth must file a Withdrawal Notice Form with the Registrar, who will inform the dean of the student's college. Failure to follow this procedure will jeopardize the student's readmission. A student who officially withdraws shall receive a WP or WF in each course as appropriate (see Grading System). If a student does not reenter the University in the following semester but plans to at some later time, he or she must apply for a leave of absence.

Veterans who withdraw are urged to consult the Coordinator of Veterans' Affairs.

Re-admission After Interruption of Study
Former students may request re-admission to continue undergraduate work, after an absence longer than that covered by an approved leave of absence or after an absence for which an approved leave was not obtained. Re-admission requests are submitted to the Registrar, who forwards the request to the dean of the college of the student's major.

A modest fee is charged to each applicant for readmission.

An individual's re-admission is not automatic; some re-admission requests are denied. The individual is evaluated for academic progress and for availability of space in the major program and must receive Bursar's clearance. Applicants who wish to be re-admitted in a different major or who were not making satisfactory progress when they withdrew receive a special scrutiny at the departmental and dean's level. "Satisfactory progress" in the phrase above refers to students who were neither dismissed from the university for academic reasons nor on academic probation at the time of withdrawal.

Re-admission to Pursue a Second Bachelor's Degree
Individuals who received a bachelor's degree from UMass Dartmouth or a predecessor institution may request re-admission to pursue a second bachelor's degree. As above, these requests are submitted to the Registrar, who forwards the request to the dean of the college of the student's intended new major. Such a student must complete at least 30 additional credits at UMass Dartmouth, and will complete all courses required for the second degree, including any prerequisite or deficiency courses not previously completed satisfactorily. Such a re-admitted student will be considered a regular degree-seeking student and be subject to major program requirements and the university's academic policies and procedures.

Re-admission to pursue a second degree is not automatic; some re-admission requests are denied. The individual is evaluated for academic qualifications and for availability of space in the major program.

Students with a bachelor's degree from a different institution may seek admission to UMass Dartmouth to pursue a second bachelor's degree through the university's Office of Undergraduate Admissions. Such students, upon admission, will be required to complete at least 60 credits at UMass Dartmouth, meeting the terms of the university's undergraduate residency requirement, given earlier in this chapter.

Re-admission to Pursue a Non-Degree Course of Study
Former students who wish to return to UMass Dartmouth to earn a certificate or take courses not applied toward a degree should seek acceptance as special students, in a process described earlier in this chapter. Many options are available, from selecting courses for personal interest or benefit to entering one of the university's formal certificate programs, described below in the chapter on Interdisciplinary and Special Programs.

Requirements for Progression in a Major
Students admitted to a major may remain in it until graduation, until they shift to another major, or unless they are dismissed from the major because they did not meet a requirement for progression. Requirements for progression in a major are stated in the appropriate sections of the *General Catalogue*. Such requirements may include (but are not limited to) the following: maintenance of a minimal G.P.A. in all courses

or in all major courses; satisfaction of requirements for progress in completing major courses; the passing of one or more mid-program reviews; the meeting of stated requirements for professional practice. Dismissals from a major are recommended by the department to the college dean.

Class Attendance
There is no University-wide attendance policy. Students are expected to be present at all scheduled activities related to courses in which they are enrolled and are responsible for the course work and assignments missed during any absences. They must take the initiative in making up any work missed and finding out about any assignments made during their absence. Extended absences for medical or personal reasons should be reported to the Office of the Dean of Students.

Individual faculty members are responsible for informing students of the attendance rules for each class and the penalties for violating them. Faculty members are solely responsible for the enforcement of these rules.

A class session is considered cancelled if the instructor does not report within ten minutes from the beginning of the class period.

Absence for Religious Observance
Students have the right to make up examinations, study, or work requirements that they miss because of absence from class for religious observance, but they also have an obligation to inform the course instructor as to the days on which they will be absent for religious reasons. Students should inform the course instructor in writing of the days they will be absent as early as possible in the semester and always prior to the day(s) the student will be absent for religious reasons.

If they feel that it is important for course planning, instructors have the right to require students to provide a written list of days they will be absent for religious observance within one full week after the students' enrollment in the course, provided the instructor lists this requirement and corresponding deadline on the course outline or other handout.

In the event of a dispute between a faculty member and a student in a course, the chairperson of the department in which the course is taught shall be responsible for its amicable resolution. If the dispute cannot be resolved at this level, the issue will be referred to the dean of the college in which the course is taught.

For convenience, a listing of major days of religious observance is given at the end of this chapter (page 50).

Financial Obligations
Any student who has an outstanding financial obligation to the University will not be considered officially registered for courses. The obligations include tuition, fees, housing charges, Campus Store balance, library fines, loan balances, parking fines, etc. Financial clearance must be obtained from the Bursar's Office.

Maintenance of University Records

The Office of University Records serves as director of university records and maintains the official educational records of all graduate and undergraduate students.

The Office of University Records also conducts registration, arranges schedules, enforces certain academic regulations, and issues official transcripts from the university. Petitions to receive credit toward your university degree for courses which have been taken elsewhere must be filed with the Registrar. The Registrar also certifies enrollment to the Social Security Administration, the Veterans Administration, insurance companies, banks, guaranteed student loan agencies, and other agencies including higher education loan agencies.

Confidentiality of Records
The university policy on the confidentiality of records is consistent with the requirements of the Family Education Rights and Privacy Act of 1975. The policy is designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction or inaccurate of misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Policy Compliance Office, U.S. Department of Education, Washington, DC 20202-4605 concerning alleged failures by the university to comply with the Act.

The university has designated the following categories of student information as public information: student's name, local and permanent addresses and phone numbers, most-recently attended previous school or college, major field of study, dates of attendance, home town where applicable, membership in university curricular and extra-curricular organizations, weight/height of members of athletic teams, and degrees and awards received. Currently enrolled students may withhold disclosure of the above categories of information by submitting written requests to the registrar's office *each year* of enrollment. The university assumes that absence of a student's request to withhold public information indicates individual approval of disclosure.

Starting in fall of 1995 UMass Dartmouth will publish a directory listing its current students, and thereafter a new directory will appear each fall semester. The directory will list names, local and permanent addresses, major field of study, and dates of attendance or class year. This directory will be sold at a reasonable cost in the Campus Store. It will thus be available not only to students but to members of the general public, including political groups, public or private agencies, and advertisers.

The university develops and maintains several types and varieties of educational records on its students. A list of what types of *educational* records are maintained by the university, where they are kept, what university official has major responsibility for those records, who has access to those records and why, and what it will cost you to obtain a copy of those records, is available for inspection in the Office of University Records. A complete copy of the university's procedures and policies regarding the Family Educational Rights and Privacy Act is available for inspection at the office listed above.

Requests for Transcripts
Transcripts may be purchased for a modest fee by both present and former UMass Dartmouth students from the Registrar's Office. Both official and unofficial copies are available. "Rush" copies are available at an additional charge; these are produced while you wait or, when requested by mail, are mailed out the same day as the request is received. Requests for transcripts must be made in person or in writing to the Registrar.

Student ID Card
At fall registration, each new student is issued a photo ID card and each continuing student's ID card is revalidated. At any time during the year, lost or damaged ID cards may be replaced, for a fee.

Students must carry their ID cards at all times and must present them to any university official upon request. Student ID cards serve many purposes, such as obtaining library services, participating in athletic or social events, and validating checks in the campus store.

The university requests all students (except international students who lack them) to submit their social security numbers for use as their student ID number. However, those who do not wish to volunteer their social security numbers will be issued a special nine-digit number for this purpose, upon formal request to the Office of the Registrar. Students who do submit their social security numbers can be assured that the university will respect and protect their privacy.

Change of Student Information
Students should notify the Office of University Records of any change in their student record. A form is made available to report changes in personal information, such as a change of name or address. The student's University Records file is the official repository of individual information such as personal data, major and minor programs, and academic records.

Graduation

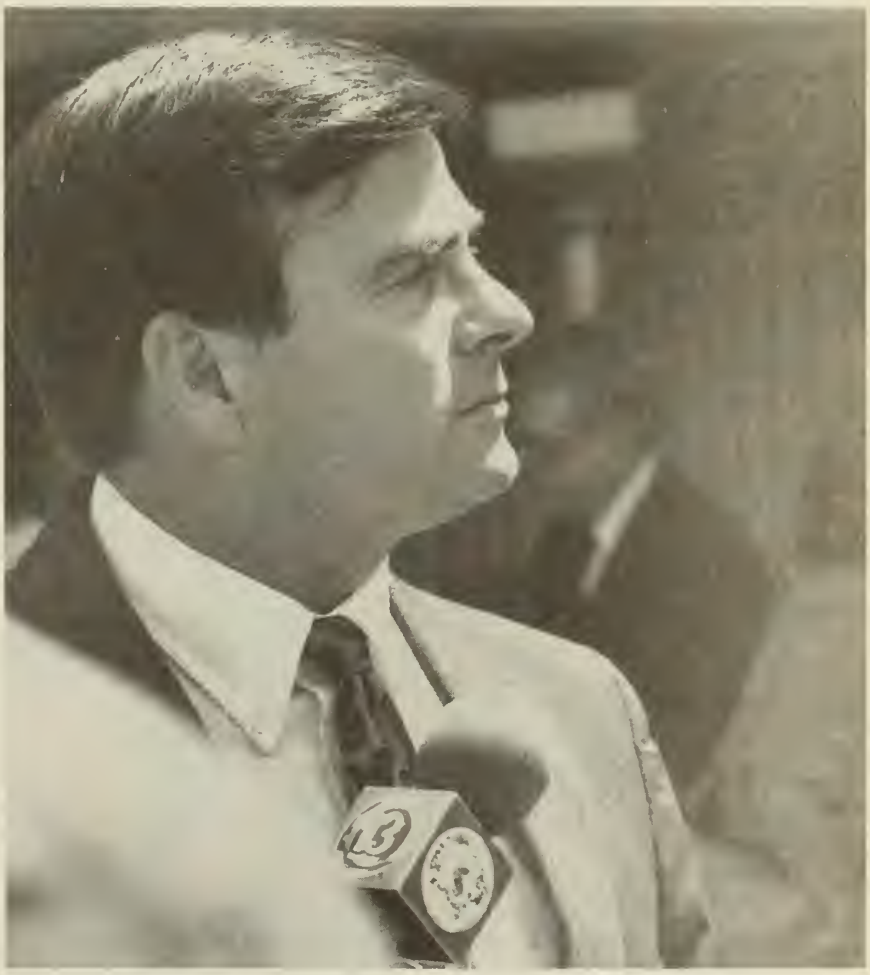
Graduation is posted three times yearly, and one yearly commencement ceremony is conducted, after the end of the spring semester. Posting is for January, June, and September.

It is important for students planning to graduate in the upcoming fall, spring, or summer to take care of important procedures and meet important deadlines.

- Students who intend to graduate in spring must, by March 15, declare themselves candidates for graduation at the office of the registrar; those who miss this deadline may be posted for spring graduation but will not receive the actual diploma at the commencement ceremony. They will also meet with their departmental advisors for an important review of any remaining requirements. Students who intend to graduate in fall must declare themselves candidates by November 1.
- Students whose spring graduation requirements will be completed only with the inclusion of one or more courses from the three-week term that occurs immediately after the end of the spring semester will not receive a diploma at the commencement ceremony. Later, if appropriate, their graduation will be posted for June of that year. They may participate in the commencement ceremony.
- Students whose spring graduation requirements will be completed with the inclusion of one or more courses in transfer from another institution must insure that UMass Dartmouth will have received official notification from the other institution by the ending due date for UMass Dartmouth spring semester final grades. Those for whom such notification is received later will not receive a diploma at the commencement ceremony. Later, if appropriate, their graduation will be posted for June of that year. They may participate in the commencement ceremony.

UMass Dartmouth allows undergraduate students who will complete requirements in the summer to participate in the spring commencement ceremony, because a summer ceremony is not offered. The policy is that students within 9 credits of completing graduation requirements and who intend to complete the requirements in that summer's instructional term(s) may participate in the commencement ceremony. Their graduation will be posted for September of that year, if they do complete the requirements in the summer term.

A separate policy applies to graduate students (see Graduate School regulations).



Major Days of Religious Observance

1995—1996

University policy and Massachusetts state law require faculty to offer make-up assignments or exams to students who are absent for religious observance.

As an aid to curriculum planning, the following list of major religious observances for the 1995-96 academic year is made available by the Office of the Provost. Faculty are advised that the list is not exhaustive of observances of any religion. Jewish, Baha'i, and some Muslim religious observances begin at sundown of the previous day.

Fall 1995

Rosh Hashanah
(Jewish New Year)/J
September 25-26 (M, Tu)

Durga Puja
(Worship of Divine Mother)/H
October 2 (M)

Yom Kippur
(Atonement)/J
October 4 (W)

Sukkot
(Festival of Tabernacles)/J
October 9-10 (M, Tu)

Birth of Baha'u'llah/Ba
November 12 (S)

Christmas
(Birth of Christ)/C (legal holiday)
December 25 (M)

Spring 1996

Bodhi Day (Enlightenment)/B
January 16 (Tu)

Ramadan Begins/M
January 20 (Sa)

Shiva Ratri (Worship of Shiva)/H
February 17 (Sa)

Idul-Fitr (End of Ramadan)/M
February 20 (Tu)

Naw-Ruz (Baha'i New Year)/Ba
March 21 (Th)

Ramanavami (Birth of Rama)/H
March 28 (Th)

First Day of Passover/J
April 4-5 (Th, F)

Good Friday
(Crucifixion of Christ)/C
April 5 (F)

Easter (Resurrection of Christ)/C
April 7 (S)

Hanamarsuri (Birth of Buddha)/B
April 8 (M)

Baisakhi (Brotherhood-Sisterhood)/S
April 13 (Sa)

First Day of Ridvan
(Declaration of Baha'u'llah)/Ba
April 21 (S)

Idul-Adha (Day of Sacrifice)/M
April 28 (S)

Muharram (Islamic New Year)/M
May 20 (M)

Shavuoth (Festival of Weeks)/J
May 24-25 (F, Sa)

Summer 1996

Wesak (in celebration of the Buddha)/B
June 30 (S)

*
B=Buddhist;

Ba=Baha'i;

C=Christian;

H=Hindu;

J=Jewish;

M=Muslim;

S=Sikh

Special Course Opportunities

Many students will desire educational experiences that extend beyond the regular courses of the university. The university thus offers various individually-initiated learning experiences to its students.

Such opportunities are of many sorts. They include Independent Study, Contract Learning, and Directed Study; study at a nearby university through cross-registration; study abroad; and receiving credit through a variety of standardized examinations.

Independent Study

Independent study, faculty-supervised research into areas of study outside the current curriculum, offers students the opportunity to investigate a research topic independently, under the close supervision of a faculty member. Independent Study will only be approved for research into areas of study that do not duplicate the University's current curriculum of courses.

Upper Division students may request to do Independent Study for up to twelve semester hours of credit upon recommendation of the Faculty Advisor, Department Chairperson, and Faculty Sponsor. Twelve semester credits is the maximum allowed for an entire undergraduate academic career. The approval of the student's Academic Dean is required. The student must submit a written proposal and outline of the program of study to be undertaken, which, if approved by the Sponsor and the department chairperson, will become a guide for evaluating the student's performance and accomplishment.

The student will be held responsible for meeting the requirements of the Independent Study as outlined and approved, and the Sponsor will assume responsibility for coordinating the Independent Study, evaluating its results, and determining an appropriate grade.

Forms for enrolling in Independent Study are available at the Registrar's Office. Independent Study courses will be designated as such on the student's transcript.

Directed Study

Students who wish to take a regular university course in a semester when it is not offered may seek to satisfy those course requirements through a Directed Study option. However, students must understand that, because the appropriate faculty must be available and approvals must be granted, the option of Directed Study for a particular course is not always available.

In Directed Study, the faculty member must agree to provide the student with close supervision, in achieving the *same* course objectives that would have been accomplished had the student taken the course on a regular class basis. Permission for Directed Study must be obtained, in order, from the subject/course faculty member, the major Department Chairperson, and the Dean involved, after consultation with the Faculty Advisor.

Forms for enrolling in Directed Study are available at the Registrar's Office. Directed Study courses will be designated as such on the student's transcript.

Internships, Practicums, and Contract Learning

Some of the university's majors offer formal internship or practicum opportunities for students. There is considerable variety in the types of experience provided and the levels and amounts of credit. However, students in any major may arrange for an external learning experience.

Some programs that may be available to UMass Dartmouth students, like those of The Washington Center (with which the university is discussing affiliation), offer a full semester or more at the internship site. The university is in the process of implementing a procedure whereby the student can pay the charges associated with such internship programs in lieu of campus tuition and mandatory fees. More can be learned about these opportunities from advisors in the student's major field or at the Academic Advising Center, and at the Office of Career Services.

Students may also receive significant experience as part of their credit load in a given semester, through the **Contract Learning** program. This program provides students an opportunity for experiential learning and practical application of their academic training, while earning academic

credit. A typical internship contract would earn three credits. Under the direction of a faculty sponsor and with the faculty sponsor's advice and consent, arrangements are made to work under the immediate supervision of a supervisor at a work site, which may be located on or off campus. The range of project types and settings is almost limitless, creating exciting ways to enrich one's academic studies, to test a tentative career choice, and to gain valuable experience.

The program is administered through the Office of Career Services. The program is open to all degree candidates, who in general are juniors and seniors. Those below junior level who can establish their capability for a proposed project may also participate in the program. Students wishing to participate must submit an approved internship contract proposal.

Although the typical internship contract would earn three credits, internships proposing a greater/lesser number of credit hours are also possible. Contract Learning Internship credits are considered as part of the normal student credit load and subject to university policy with regard to credit hour limitations. Contract Learning courses may not be used to fulfill distribution requirements but serve as free electives and may be accepted toward the requirements of some majors. Because they are not considered upper division credits, they may not be used toward the upper-division graduation requirement. Up to five weeks into the semester, the student may increase the credit hours for the contract learning internship subject to the same approval procedures as for the original proposal. Students on academic probation are not eligible for this program, unless that ineligibility is waived by their college dean.

Up to 1/8th of the University's graduation credits required for the student's major may be accepted through the Contract Learning Internship Program. Thus, if a student earns all 120 credits here, he or she could take up to 15 credits under this program. Approval of the student's Dean is required for any contract which exceeds a total of six credits.

One requirement to receive credit for Contract Learning is the submission to the faculty sponsor of a written articulation of the goals and objectives of the internship. Such a document, whose nature is to be determined by the sponsoring faculty member, might, for example, include the following: a) how objectives were met, b) how personal improvement has been stimulated, c) how the internship experience has related to the student's academic experience, d) how the internship could be improved for students who pursue similar projects in the future.

Supervision of students doing projects under the Contract Learning program shall in all cases exclude individuals who are undergraduate degree candidates; faculty member cannot serve as both supervisor and sponsor.

Credit for Experiential Learning
The Division of Continuing Education offers credit for validated prior learning to those who have become regular, registered students. This program provides university academic credit for students in most majors who, through occupational or other experiences, have achieved the equivalent of college-level knowledge. Their prior learning is documented through a one-semester workshop and then evaluated for credit. For further information, consult the Division of Continuing Education.

SACHEM Cross-Registration
UMass Dartmouth students may cross-register for courses at other SACHEM (Southeastern Association for Cooperation in Higher Education in Massachusetts) institutions on a space-available, prior-approval basis. Likewise, students at these other institutions may cross-register for courses at UMass Dartmouth. Institutions involved in the program, in addition to this university, are:

Bridgewater State College

Bristol Community College

Cape Cod Community College

Dean Junior College

Massachusetts Maritime Academy

Massasoit Community College

Stonehill College

Wheaton College.

Tuition and fees established by the "away" institution are suspended, provided that the matriculated student is a degree-seeking student at the home institution and carries a full-time load. Further information and appropriate forms may be obtained in the Registrar's Office.

Study Abroad

The university encourages its students to study abroad. A number of exchange agreements have been established to facilitate study abroad, together with procedures for academic advisement, registration, and planning personal finances. In many cases, financial aid may be obtained. Furthermore, a special scholarship, the Mary Louise Walsh Fund for International Study, makes assistance available in the form of grants to undergraduates and graduating seniors.

Students who wish to study abroad while remaining UMass Dartmouth students may be listed as In Study on Exchange status. This status allows students to remain in current, registered status while they pur-sue full-time studies at another higher-education institution, which is usually located in another country. They may thus remain matriculated students and continue to qualify for their financial aid benefits. A modest fee is charged. Forms may be obtained in the Academic Advising Center.

Students seeking to study abroad must first plan with their faculty advisors the program of study that they intend to pursue at the other institution and receive departmental approval of this study plan. Credits completed while a student is in Study on Exchange status will be displayed on the transcript with the grades shown. In calculating the student's cumulative grade record, however, the credits will be treated like transfer credits.

The University has formal exchange agreements with the University of Grenoble (France), the Lycée du Grésivaudan at Meylan and the Lycée Aristide Berges (just outside Grenoble), Nottingham Trent University (England), the Baden-Württemburg Universities (Germany), Centro de Arte e Communicacao (Lisbon, Portugal), and Catalonia International College (Barcelona, Spain). Newly approved is an exchange agreement for students of textile sciences with the Ecole Nationale Superieure des Industries Textiles, Universite de Hante Alsace, France. Programs at these schools allow students to pursue studies in or related to the UMass Dartmouth major fields.

The exchange programs listed above present only one means for UMass Dartmouth students to study abroad. A large pool of additional exchange opportunities is made available to our students through the Massachusetts Consortium on International Education (MaCIE), which includes all public colleges and universities in the state. Through MaCIE, our students can choose from among all of the study abroad opportunities—public higher education institution in Massachusetts. In addition, there are informal opportunities for study and travel during the academic year and summer.

For example, during summer 1994, the College of Visual and Performing Arts offered a design, painting, and drawing workshop in La Napoule, France (near the French Riviera). The Overseas Study Program in the College of Business and Industry sponsors a yearly trip to another country to explore an area of interest in international business. A history professor whose area of interest is Russia has led groups of students and faculty on field trips to that country, and one of the language professors coordinated a trip visiting sites of significance to Christopher Columbus.

Furthermore, students may take the initiative in finding other programs on their own; during the past year, for example, students have attended Cambridge University (England), Shiller University (Germany), and Yonsei University (Korea), in addition to the exchange-agreement institutions.

The following people can provide more information about these programs and related opportunities.

General assistance with study abroad and MaCIE liaison—Judith L. Rizzi, Director of Academic Advising; John Carroll, department of Political Science

Baden-Württemburg—Joseph Bronstad, professor of Foreign Literature and Languages

Centro de Arte—Chris Gustin, professor of Visual Design

Grenoble, the Lycées, and Catalonia—Lewis Kamm, Associate Dean, College of Arts and Sciences

Nottingham Trent—John Carroll, department of Political Science

Ecole Nationale Superieure—Kenneth Langley, department of Textile Sciences

Receiving Credit Through Standardized Examinations

CLEP Examinations

The University has approved the use of the College Level Examination Program (CLEP). The CLEP exams are offered by the College Entrance Examination Board. The program enables those who have reached the college level of education outside the university to demonstrate their achievement and to use the test results for college credit and/or placement.

The equivalency of CLEP examinations to this university's courses shall be determined by the department that teaches that subject matter. CLEP credits may not be used to duplicate or replace credits for coursework taken here or elsewhere. Because CLEP credits are defined as transfer credits, they will be reviewed to insure that they are acceptable according to university standards and will not be reflected in an individual's grade point average. No more than 30 credits earned by CLEP Examination may be used to satisfy degree requirements.

Two types of CLEP examinations are offered, Subject Examinations and General Examinations.

Subject Examinations
One semester's course credits (usually 3) or two semesters' course credits (usually 6) may be awarded for a grade at or above the fiftieth percentile on a CLEP Subject Examination (CEEB designates whether each exam is equivalent to one or two semesters.) Such credits may be used to satisfy university distribution requirements or may be used as elective credits.

General Examinations
Six credits each will be awarded for a grade at or above the fiftieth percentile on any of the CLEP General Examinations, except that these credits shall not be used in addition to Subject Examination credits in the same content area. They may be applied only to satisfy distribution requirements or as elective credits outside the major field of a degree candidate.

Advanced Placement

The University recognizes that increasing numbers of students complete appropriate college-level studies while they are in secondary school. Advanced Placement and college credit are awarded to students presenting Advanced Placement Examination grades of three or higher. The Advanced Placement Examinations are offered by the College Entrance Examination Board. Such course credits may be used to satisfy degree requirements. Additional information is available at the Office of Admissions.

Proficiency Challenge Examinations

Students transferring to the majors in business administration or nursing, as well as certain other programs, may be asked to verify proficiency in some subjects taken earlier, through challenge examinations. Some examinations are departmentally administered, while others are provided through the CLEP program, mentioned above. Please refer to the departmental sections in the *General Catalogue*; details will also be provided by the departments.

Military Service Training

For Military Service School training, credit may be awarded according to the recommendations contained in the most recent Guide to the Evaluation of Educational Experience in the Armed Services of the American Council on Education. These credits cannot be applied to the student's major field of studies. CLEP Subject Examinations may be used to establish proficiency within the proposed major field as part of the pre-admission process.

University Outreach and Advancement Programs

Many special activities contribute to the university's mission and reflect its active roles in the region. The university takes very seriously its responsibility to make its intellectual resources accessible widely. Furthermore, the university is concerned to maintain an on-going relationship with its graduates and the families of its students.

Described here are various of the university's offices and programs which extend beyond its walls or reach out to others than the current student body. The listing is by no means exhaustive, but presents some key programs and offices that help the institution fulfill its broader purposes.

UMass Dartmouth Parents' Association
Formed in 1991, the UMass Dartmouth Parents' Association actively participates with university administrators and students to insure communication of ideas, to promote programs that benefit students, parents, and the university, and to act as a parents' support group. Every parent of a current UMass Dartmouth undergraduate student is automatically a member of the organization and is encouraged to offer financial as well as personal support to the activities of the Parents' Association.

Administrative liaison for the Association is provided through Susan Costa, Associate Dean of Students (contact 508-999-8646 for further information).

UMass Dartmouth Foundation
The UMass Dartmouth Foundation encompasses both fund-raising and alumni relations activities. Through the Annual Fund and a variety of other fund-raising initiatives, the Foundation office helps provide annual and long-term support for the university.

The UMass Dartmouth Foundation is a separately-chartered, tax-exempt corporation governed by its own board of directors, which solicits, receives, and administers gifts to the University and manages UMass Dartmouth's endowment, including funds devoted to specific purposes such as scholarships, faculty development, library support, and the like. The Foundation also seeks financial support for the University as well as non-monetary gifts, and assists with planned gifts and bequests.

Members of the University community who are aware of friends and alumni who might be of special help to UMass Dartmouth are encouraged to contact the UMass Dartmouth Foundation at 508 999-8760.

UMass Dartmouth Alumni Association
The alumni office provides communication and services for UMass Dartmouth's more than 28,000 alumni throughout the country and abroad. The UMass Dartmouth Alumni Association is the largest volunteer organization on campus, representing more than 28,000 former students in all 50 states and around the world. Serving as liaison between the university and its former students, the Alumni Association provides opportunities for people to get involved in shaping the future of their school. Contact the Alumni Affairs Office, Foster Administration Building, room 322 (or call 508-999-8031).

As students graduate, they are invited to remain actively involved in partnership with the university, through the Alumni Association. An earlier section of this *Catalogue* describes activities of the Association that especially involve current students.

Office of Grants and Contracts
The Office of Grants and Contracts addresses an important element of the university's mission: to foster research, scholarship, creative productions, and other professional activities by faculty and staff. The program accomplishes this mission by providing three basic services:

- Research and Information: assisting in the identifying of funding opportunities, maintaining current information on sources most responsive to the university's needs, and providing administrative support services on faculty research projects;
- Proposal Development and Submission: assisting in all aspects of proposal development and submission;
- Award Negotiation: negotiating and administering award contracts on behalf of the university. All post-award management is handled by the Fiscal Affairs Division of the university.

Today, the university administers approximately six million dollars in externally funded projects, including research, educational support, and training projects. In the past five years, the level of funding received by the university has tripled. The increase in level of activity has resulted in many benefits to the university, including added support for graduate programs, expanded opportunities for faculty research, and greater selectivity in the projects the university seeks and thus an enhanced relationship between research activities and the goals and purposes of the institution.

The Office of Grants and Contracts is located in the Foster Administration Building, Academic Affairs Suite.

Southeastern Massachusetts Partnership
The Southeastern Massachusetts Partnership develops and oversees the implementation of a strategic economic development plan for the region. It is an active collaboration between the region's cities (Attleboro, Fall River, New Bedford, Taunton) Bridgewater State College and the university.

The Partnership's activities include collection and monitoring of data on the southeastern Massachusetts economy; development programs for businesses, particularly in industrial modernization, international trade, and entrepreneurship; and assisting the member commu-

nities in their economic development efforts.

The Partnership provides opportunities for students:

- Extensive information is available that would be useful to students undertaking research projects in economics, education, business, and industry.
- The Partnership employs work-study and non-work study students part-time.
- Contract Learning opportunities may be available with the Partnership and, through the Partnership, with area private and public sector organizations.
- Students are welcome to attend the presentations of the Entrepreneur's Forum of Southeastern Massachusetts, featuring small and growing businesses.

The Partnership Office is in the Regional Business Center at 128 Chase Road, North Dartmouth. For further information contact the Partnership at 508-997-2977.

Office of Institutional Research
Institutional Research (IR) designs and manages an on-going process for institutional self-study to facilitate the university's mission. IR produces research information and analyses, provides strategic planning with a specific focus on outcomes assessment, undertakes special studies and implements results, conceptualizes and manges IR data systems, undertakes analysis of and makes recommendations on program and policy issues, and advises concerning projections and models to guide planning and management of resources.

The Office oversees preparation of reports required by the UMass system, state legislature, federal government, and other public and private organizations. Data collection and systematization are coordinated to improve data usefulness and quality. IR also works with the academic community on the evaluation and implementation of courses of action which will enhance students' learning and overall experiences at the university.

The Office of Institutional Research is located in the Foster Administration Building (508-999-9141).

Office of News and Public Information
The News and Public Information Office, in Room 306, Foster Administration, is the campus resource for reaching the outside world through the media. The office also publishes the weekly campus newsletter, *This Week at UMass Dartmouth*, and the monthly campus newspaper, the *UMass Observer*. Press releases announcing cultural, intellectual, and social events on campus are sent to newspapers, radio and television in local, regional and national distribution formats. Short feature stories about student achievements are sent to students' hometown newspapers.

The News and Public Information Office assists student, faculty, and staff organizations and individuals in publicizing upcoming events and newsworthy achievements. It also works closely with other advancement personnel, government officials, and agencies in promoting the university.

Advanced Technology Center
The Advanced Technology Center brings together the teaching, research, and technological strengths of UMass Dartmouth and the region's established industries in a combined effort fostering education and economic development locally, regionally, and statewide. Industry can make use of information services through on-line computer systems, on-campus testing services, and manufacturing services. Students are encouraged to join faculty and staff in research or other educational activities, supporting the development of new ideas, technologies, and products.

Boivin Center for French Language and Culture
The Boivin Center for French Language and Culture promotes teaching of, research about, and appreciation of French language and culture and acts as a catalyst for French studies at the university and regional levels. Among its many projects is to offer a certificate program to students of the university in International Business/French, described elsewhere in this *Catalogue*. The Center has been founded to be an enduring symbol and constant testimonial to the interest of Omer E. and Laurette M. Boivin in the study, promotion, and preservation of French language and culture.

Center for Business Research and Competitiveness
The Center for Business Research and Competitiveness (formerly the Center for Research and Business Activity) links the public, private, and academic sectors in order to foster business research, economic development, and enhanced industrial/organization competitiveness in regional enterprises. In support of this effort, the Center assists faculty in research and grant development in these areas.

Opportunities are provided for undergraduate and graduate student participation in the Center's activities.

Detailed information on the Center's objectives may be obtained upon request from the Office of the Dean, College of Business and Industry. The Center Director is Dr. Harvey Kahalas, who may be reached at the Dean's Office at (508) 999-8748.

Center for Jewish Culture
The Center works to increase understanding and communication between Jewish and non-Jewish people of southeastern Massachusetts through significant educational and cultural programs. It both publicizes existing functions and initiates workshops, lectures, seminars, and institutes that explore aspects of Jewish culture, and works to expand the Judaica collection in the library and to develop a resource center for students, scholars, and lay people.

The Center has developed an academic minor in Judaic Studies, for students of the university, as described elsewhere in this *Catalogue*.

Center for Marine Science and Technology (CMaST)
The Center for Marine Science and Technology has the broad mission of advancing applied and basic research in marine science and technology, including graduate and undergraduate research instruction. It provides a university-wide focus and support structure for research in the marine sciences and technology, fosters interdisciplinary and multidisciplinary collaborations, and enhances opportunities to obtain extramural funding in support of research.

CMaST was created to help the university maintain and expand its historic interest in research and education in marine science and technology. The proximity of the university to Buzzard's Bay, the fishing fleet of New Bedford, and other marine-oriented commercial, research, and educational institutions offers unique resources and opportunities.

In light of this history, the university has been designated as a Center of Excellence in marine sciences by the Commonwealth of Massachusetts.

Center for Policy Analysis
The Center for Policy Analysis is a multidisciplinary research unit dedicated to the creation and dissemination of knowledge that facilitates economic, social and political development.
The Center aims to enhance the economic and social well-being of citizens by providing research, information, and technical assistance to government, nonprofit and educational agencies.
The Center seeks to erode the walls between research and teaching by training students in the techniques of applied social science and by conducting University and community-based educational programs.

Center for Rehabilitation Engineering
The Center for Rehabilitation Engineering was established to improve the quality of life of disabled individuals by the creative application of engineering knowledge and technology. The main purpose of the rehabilitation center is to develop and implement high technology devices and systems to benefit people who are disabled, and to conduct research related to rehabilitation equipment, techniques, and services.

The continuing success of this organization is aided by the volunteer work contributed by students and staff. Professor Lester Cory of Engineering is the contact person.

Family Business Center
The Family Business Center offers support for family business owners and their families with activities to meet the needs of family businesses for educational outreach, research, and information.
A variety of issues from leadership succession to family teamwork and from ownership transition to family values is addressed through workshops, seminars, how-to books, camps, or a combination of these resources.

Labor Education Center
The Arnold M. Dubin Labor Education Center was established in 1975 to meet the educational needs of workers as members and leaders in the labor movement and as active and responsible citizens in the community. The Center provides non-credit courses, seminars, and special programs, offers support and consultation to the educational programs of labor organizations, and provides workers and unions with technical and informational resources. Furthermore, the Center serves as a liaison between the university and labor organizations on many levels including worker literacy, training and economic development activity. The Center is committed to promoting a greater understanding and cooperation between labor and business, religious, environmental, and other civic and community organizations.

Laboratory for Marine and Environmental Science and Technology
Now in the construction stage, the Laboratory will provide a fully up-to-date research facility for marine and environmental science and technology. Its thrust will be interdisciplinary, supporting research in marine biology, marine chemistry, and marine applications of electrical and computer engineering. Research-related instruction will also occur in the Laboratory, and links will be fostered with industry, governmental agencies, and other research and academic institutions. The facility is located at Clarks Cove in New Bedford.

Northeastern Regional Aquaculture Center
The goal of the Northeastern Regional Aquaculture Center is to develop and support aquaculture research, development, and demonstration activities to enhance production by the aquaculture industry in the northeastern United States. This Center is one of five Regional Aquaculture Centers established by the U. S. Congress and funded by the U. S. Department of Agriculture.

The Northeastern Regional Aquaculture Center develops and sponsors cooperative regional research and extension projects, develops communications and networking among the many educational, commercial, and state and federal institutions involved in aquaculture, and hosts conferences and workshops. A major effort is involved in funding regional projects for the aquaculture industry.

Policy Center for Marine Biosciences and Technology
The Policy Center brings together scientists, leaders of industry, and government representatives to explore the issues and problems surrounding the rapidly growing field of marine biosciences, in which different disciplines such as zoology, botany, and microbiology become interrelated when associated with marine study. A think-tank for scientists, leaders of industry, and government representatives, the program provides formal links between UMass Dartmouth, Harvard University, Marine Biological Laboratory, Woods Hole Oceanographic Institute, and the Northeast Fisheries Science Center. Through fact-finding and debate, the program will explore the ethical, legal, and social implications of this scientific research and how it can be applied to the economic and social benefit of the United States. The program is directed by Harlyn O. Halvorson, recently retired director of Woods Hole Marine Biological Laboratory.

School Leadership Center
The School Leadership Center seeks to promote school effectiveness by providing developmental opportunities for school leaders. Through the Center, school leaders come together to become aware of the latest trends and techniques, develop leadership and managerial skills, and share information, form support groups, and organize an effective networking system. Workshops, seminars, and conferences conducted by local practitioners and national experts are sponsored to offer professional development.

Small Business Development Center
UMass Dartmouth's College of Business and Industry operates a Small Business Development Center that serves all of southeastern Massachusetts, including the islands. Funded jointly by the Small Business Administration and the Massachusetts Office of Business Development, the Center provides free one to one counseling to prospective and existing small businesses on such topics as business plan development, finance, cash flow management, human resource issues, marketing, and international trade. Training programs are offered for a nominal fee on a wide variety of management issues. Contact Clyde L. Mitchell at 508 673-9783.

Teaching Resource Center
The Teaching Resource Center was established in 1994 to provide a clearinghouse for information about K-12 outreach activities of UMass Dartmouth faculty, especially those in Arts and Sciences; to expand K-16 contact, particularly by developing professional development recertification workshops; to develop pedagogy resources for UMass Dartmouth faculty; and to support our developing Masters of Arts in Teaching program.

The Center works closely with regional superintendents in the Southeast Curriculum Exchange, with area principals and teachers, and the School Leadership Center as part of its work with recertification. The State Education Department has designated UMass Dartmouth as a provider for Professional Development Points recertification.

For more information contact the Office of the Dean of Arts and Sciences 508 999-8268.

The selection that follows here features some programs and facilities that have had a long-standing association with the university. They, like many more short-term programs and events, contribute to the multitude of experiences the university offers to students, faculty and staff, and the greater community.

Eisteddfod Traditional Arts Festival
Each fall since 1972 UMass Dartmouth has hosted a weekend-long festival featuring artists, musicians, poets and performers who represent and celebrate the history, literature, music and arts of the world's people through their ethnic origins. Distinguished scholars also attend to provide depth and context.

International Student Leadership Institute (ISLI)
Yearly the university offers this program from the University of Notre Dame to New England high school students. ISLI develops the leadership skills of the participants and encourages them to seek opportunities for personal advancement in the service of others. Students of the university participate as group leaders. Dr. Victor P. Caliri of Psychology (508) 999-8341 and John Fernandes (508) 999-8718 are the contact persons.

Musical Ensembles and Orchestras
Year-round the university sponsors musical offerings of a rich variety.

A series of on-campus concerts features the UMass Dartmouth Concert Band, Brass Ensemble, Jazz Ensemble, Stage Band, Symphony Orchestra, Pops Orchestra, and Chorus. Music Department faculty coordinate these concerts, in which students from all colleges of the university participate.

The UMass Dartmouth Music Guild sponsors a Guest Artist Series each semester, which features instrumental and voice performances and master classes from internationally-known artists. A highlight of the school year is the Jazz Festival. This program brings well-known jazz musicians to campus for residencies. The musicians conduct workshops and critiques for the students, culminating in a major public performance.

Robert F. Kennedy Assassination Archive
The Robert F. Kennedy Assassination Archive has achieved national recognition and usage as a unique and voluminous collection of police and FBI reports, audio and video tapes, transcripts, and private papers about the Robert Kennedy assassination. An enduring project of Political Science Professor Philip H. Melanson, the Archive stands as a major tribute to fundamental rights to information. The Archive is located in the Library Communications Center.

Small Business Institute
The Small Business Institute assists area businesses. UMass Dartmouth senior business students analyze smaller businesses and help the owners with any problems. Businesses ranging from restaurants to auto parts stores to wood stove manufacturers have benefited by the assistance of the Institute.

Speakers Bureau
UMass Dartmouth sponsors a Speakers Bureau that offers faculty to speak before school classes or groups, principally in grades seven through twelve, or other organizations or groups. Donald J. Mulcare, Professor of Biology, is the contact person for this project. (508) 999-8224

Spotlight Program
This educational enrichment program invites high-potential area high school students to experience a series of lectures and workshops during the academic year on the UMass Dartmouth campus. It is one of the activities of the UMass Dartmouth Projects for High Learning Potential. Professor Robert Piper of the Political Science Department is the contact person at 508 999-8036 or you may call Mayfrid Paul, Program Assistant, at 508 999-8899.

Theatre Company
The UMass Dartmouth Theatre Company offers yearly at least a dozen presentations in which students may be joined by university staff or faculty and by community people as actors and technicians. Productions have ranged from classic plays and musicals such as *A Streetcar Named Desire* and *Oklahoma* to more contemporary offerings like *Steel Magnolias*.

Visual Arts Events and the UMass Dartmouth Art Gallery
Visiting artists are invited each year to the campus, where they offer workshops and critiques to art students and present exhibitions and shows that are open to the university and community.
Students are encouraged to experience the contemporary art world through bus trips each semester to museums and galleries in Boston, Providence, New York, and Hartford. A film series is shown each semester based on current American and European issues.

The UMass Dartmouth Art Gallery offers contemporary exhibitions which are often supplemented by video series and gallery talks. Student and faculty shows occur annually. The Gallery thus serves as a valuable extension of the classroom and enriches the artistic environment of the university and surrounding community.

Listings of Program Requirements and Courses

The five colleges of the university are each sub-divided into a number of departments, which offer majors or other academic programs. The following sections of this *Catalogue* describe the specific program requirements and courses of the university, college by college, followed by a sixth chapter on interdisciplinary programs.

The purpose of this section is to explain the formats used to state program requirements and to describe courses.

Program Requirements

A general statement for each college is followed by separate descriptions of each department in that college and the programs it offers. General requirements that apply to all of the students in the college are given in the section describing the college. Requirements specific to the departments follow in the sections devoted to each department.

For each department, the majors, minors, or other programs are described, and for each major is stated the specific degree that is awarded. Then the specific course and other requirements for each program are stated.

Although the program requirements are presented in full detail, there are many aspects of program planning which will require each student to consult regularly with an academic advisor, and certain decisions require specific permission of the advisor.

Course Descriptions

Following the program descriptions and listings of requirements is a listing of all courses from that department. To learn the selection of courses that is to be offered in any one semester or term, students should consult the published *Course Listings*, available at the Office of the Registrar.

This catalogue uses a systematic format for course descriptions. *Two examples follow, with explanatory notes:*

	Notes
BIO 314 four credits	*1a, b*
General Ecology	*2*
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory	*3*
Prerequisites: BIO 121, 122	*4*

General ecology considers the general field of interrelationships between organisms and their environments with emphasis on the biology of populations, and includes laboratory and field studies of terrestrial, fresh water and marine environments. Extended field trips, some of which will be held on weekends and/or holidays, are an integral part of this course. *5*

ARH 103 three credits	*1a, b*
Development of Modern Painting and Sculpture	*2*
Prerequisite: ARH 102 or permission by instructor	*4*

Painting and sculptural developments from the late 19th Century to World War II. The historical context of major artists and the theoretical, critical and aesthetic issues surrounding their works will be discussed. *5*

Notes

1a

Department Designation and Course Number. Departments use a standard three-letter abbreviation to identify the department or field of the course; the courses shown are for Biology and Art History. The course number then identifies each course uniquely. The 100-level courses are introductory-level; 200, intermediate-level; 300 and 400, advanced and specialized-level; 500 and 600, graduate level. It is generally assumed that students may take the more advanced-level courses only with an appropriate foundation in the field; these courses usually have prerequisites or require permission of the instructor. In departments that permit advanced undergraduates to take graduate courses, in all cases permission of the instructor is required.

1b

Number of Credits. Each course carries the number of credits specified. The more credits, the greater the obligation the course carries for in-class and out-of-class work. In courses that use the lecture or lecture-discussion format, there is a one-to-one relationship between the number of credits and the number of class contact hours each week (based on a 50-minute period per hour). See note 3, below.

2

Course Title. Each course is given a unique, descriptive title that indicates its topic and content.

3

Class Type and Contact Hours. Some courses use formats that differ from the lecture or lecture-discussion type. For example, the Biology course here exemplifies a combination of lecture and laboratory experiences. As shown, the number of class contact hours per credit may exceed the number for a class that uses the lecture or lecture-discussion formats only. When there is no annotation, the course uses the lecture or lecture-discussion format. The Art History course exemplifies this. Some course listings have a blanket annotation that applies to an entire sequence of courses.

4

Prerequisites. Stated here are any specific courses (or other requirements) that should have been completed satisfactorily as a condition for taking the course. Prerequisites ensure adequate preparation and maintain an appropriate order in the student's progression through the topics of study in the field. As stated above, even if specific prerequisites are not listed, generally students may take more advanced-level courses only with an appropriate foundation in the field. *Corequisites* are shown for some courses. These are like prerequisites but indicate another course or other experience that is to occur at the same time that the student takes the present course.

5

Course Description. The course description indicates the nature and scope of the course. Often, information is also given about the type of work for the course, as is shown in the Biology example. Course descriptions do not indicate the status of a course to fulfill requirements of an academic program. For this information, *Catalogue* users should consult the program requirements listings.

For each course attempted, the course number, course title, and the number of credits are recorded on the student's transcript, together with the grade received.

College of Arts and Sciences

The College of Arts and Sciences offers programs engaging students within the various forms of cultural, literary, and scientific experience.

Majors in Biology, Chemistry, Computer Science, Medical Laboratory Science, and Physics are candidates for the Bachelor of Science degree. Majors in Mathematics and Multidisciplinary Studies may elect to be candidates for either the Bachelor of Arts or the Bachelor of Science degree. Majors in Economics, English, Foreign Literature and Languages (French, Portuguese, Spanish) History, Humanities/Social Sciences, Philosophy, Political Science, Psychology, and Sociology/Anthropology are candidates for the Bachelor of Arts degree.

The college also offers minor programs in African and African-American Studies, Anthropology, Computer Science, Economics, English, Foreign Literature and Languages (French, German, Portuguese, Russian, Spanish), History, Judaic Studies, Labor Studies, Mathematics, Philosophy, Physics, Political Science, Sociology, and Women's Studies.

Although the University does not offer *degrees* in Education, Pre-Law, and Pre-Medical studies, students interested in Education can take sufficient courses to receive state certification, and students intending to enter medical school can plan an appropriate program of study through UMass Dartmouth's Pre-Medical Program with the help of its Advisory Committee. There are also Pre-Law and Pre-MBA Advisory Committees.

Since a large number of Arts and Sciences students enter the university without yet knowing the specific field in which they would like to major, the college has designed the Liberal Arts Undeclared program. This provides students a flexible and well-rounded course of study in the humanities, social sciences, sciences, and English, while also giving them time to discover their individual areas of interest and expertise. As a rule, all students declare a major by the beginning of the junior year, and there are many situations in which students elect to switch their major from one area to another.

Requirements

All College of Arts and Sciences bachelor of arts candidates must complete the following courses and credits and meet the following requirements.

6 credits
Critical Writing and Reading
ENL 101, 102

6 credits
Literature (except English majors)
Literature in English, literature in a foreign language or foreign literature in translation. Departments of English and Foreign Literature and Languages shall specify which courses satisfy the requirements.

9 credits
Natural Science
Courses taught in Chemistry, Biology, Medical Laboratory Science, and Physics.

9 credits
Humanities
The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from History, Philosophy (including logic), Art and Music (excluding applied courses), and Culture and Civilization courses in Foreign Literature and Languages.

12 credits
Social Science
The credits must not be taken in a student's major field. No more than 6 credits from any one field. Choose from Economics, Political Science, Psychology, and Sociology/Anthropology.

Cross-listed courses may receive either social science or humanities distribution credit depending upon the discipline of the course with which they are cross-listed.

Department Requirements

Every student must complete at least thirty semester credits of work in his or her major field. For details see section under major program.

A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits. At least 30 credits must be in courses numbered 300 or higher, exclusive of contract learning.

Quality Requirement

A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field. Individual departments may establish higher quality requirements.

Foreign Language Requirement

All candidates for the bachelor of arts degree must satisfy a foreign language requirement in one of the following ways:

1.
Satisfactory score on the ETS Achievement Test, the Advanced Placement Test, the Advanced Placement Literature Test, the CLEP Examination, or the TOEFL Examination; the last two, when combined with a writing sample, an oral examination, and the written permission of the chairperson of the Department of Foreign Literature and Languages.

2.
Completion of a 202-level course in a language at UMass Dartmouth.

3.
Satisfactory performance in both oral and written UMass Dartmouth proficiency tests, if a student has fluency in French, German, Italian, Latin, Portuguese, Russian, or Spanish.

4.
Documentation of at least intermediate proficiency in American Sign Language (ASL), provided the following conditions are met:
a) 6 credits earned in Foreign Language courses at UMass Dartmouth
b) at least one additional course in studies related to Third-World countries. Courses will be specified by the chair of Foreign Languages Department.

A student who has received advanced standing or has satisfied the language requirement by passing the appropriate test or by a waiver must take the credit equivalent in electives to attain the 120 credits needed for graduation.

Entering students will be granted advanced standing in the language of their choice on the basis of their scores on the UMass Dartmouth proficiency test or one of the tests in #1 above and grades in high school.

Requirements	Department Requirements and Free Electives	Quality Requirement
All College of Arts and Sciences bachelor of science candidates must complete the following courses and credits and meet the following requirements.	Every student must complete at least thirty semester credits of work in his or her major field. For details see section under major program.	A cumulative grade point average of at least 2.00 out of a possible 4.00 is required of all students. A grade point average of at least 2.00 is also required in courses in the major field. Individual departments may establish higher quality requirements.
6 credits **Critical Writing and Reading** **ENL 101, 102**	A sufficient number of courses must be elected so that the earned credits total a minimum of 120. Certain majors require more than 120 credits. At least 30 credits must be in courses numbered 300 or higher, exclusive of contract learning.	
6 credits **Literature** Literature in English, literature in a foreign language, or foreign literature in translation. The Departments of English and Foreign Literature and Languages shall specify which courses satisfy this requirement.		
18 credits **Humanities/Social Science** These credits are to be taken from the areas of Humanities and Social Sciences listed below, with a minimum of six credits from each area. The credits may not be taken in a student's major field.		
Humanities History Philosophy (including Logic) Art and Music (excluding applied courses) Foreign Language (excluding Literature)		
Social Science Economics Political Science Psychology Sociology Women's Studies courses receive either social science or humanities distribution credit, depending on the discipline of the course with which they are cross-listed.		

Biology

The biology major provides opportunities for building the foundation of a career in one of the many specialties in private industry and in federal and state agencies which employ biologists.

Students planning to enter graduate school should, in consultation with their advisor, strongly consider electing a foreign language, analytic geometry and calculus. For those students interested in pursuing such broad fields of study as ecology, courses which stress computer literacy and database management are good foundation courses. Students looking toward such discipline as cell and/or molecular biology and developmental biology should take genetics, molecular and cell biology and biochemistry.

Modern biology requires a wide range of supporting courses in such other fields of study as statistics, computers, physics, chemistry, electronics, meteorology and geology. Student biology majors should consult with their advisors early in their program of study as to possible career choices and plan to take appropriate elective supporting courses for their selected field of study.

Faculty and Fields of Interest

Yukio Asato cell biology, microbial genetics

Ronald A. Campbell parasitology, invertebrate zoology

LeBaron C. Colt, Jr. taxonomy and distribution of microalgae

Donald S. Douglas comparative physiology, general biology

Robert K. Edgar (chairperson) evolutionary biology, diatom systematics and ecology

Robert Griffith environmental physiology, vertebrate anatomy and physiology

Richard M. Ibara ecology and behavior of fishes, data analysis

Frederick Y. Kazama microbiology, cell biology, organismal biology

Ivor T. Knight marine microbiology

Robert Leamnson cell biology, molecular biology

Barton M. Matsumoto entomology, statistics

Sanford A. Moss animal behavior, ichthyology, vertebrate anatomy

Donald J. Mulcare developmental biology, gerontology, embryology

Nancy J. O'Connor invertebrate biology, larval biology, biofouling

Dorothy Read molecular biology, biotechnology

James R. Sears systematics and ecology of marine algae, botany

Jefferson Turner biological oceanography, marine plankton, biogeography

Biology Major
BS degree

Students may prepare for admission to medical, dental, and veterinary colleges and for admission to graduate work in the life sciences. Increasing numbers of students elect to major in biology as a means of providing themselves with a general framework of ideas concerning the interactions of living things. A substantial number of these students proceed toward vocational objectives that do not require a specialist's knowledge of biology.

Biology Major
Marine Biology Option

The marine biology option is designed to meet the needs of students who aspire to careers in ecology, marine biology, fisheries biology and biological oceanography. Students who elect the Marine Biology Option are urged to plan their program in close cooperation with their advisors. Facility in mathematics, chemistry and foreign languages is desirable. Russian, German or French is preferred as a language elective. Biology majors who choose the marine biology option have an opportunity to elect marine-oriented courses during their junior and senior years and must meet college degree requirements for the B.S. degree.

Requirements

First Two Years
(common to both options)

Semester Credits

First Year		First	Second
BIO 121, 131	Biology of Organisms I with Lab	4	
BIO 122, 132	Biology of Organisms II with Lab		4
CHM 151, 152	Principles of Modern Chemistry	3	3
CHM 161, 162	Introduction to Applied Chemistry	1	1
ENL 101, 102	Critical Writing and Reading	3	3
MTH 101, 102*	Elements of College Mathematics	3	3
		14	**14**

*Math course to be selected in consultation with the advisor. MTH 111, 112 (Calculus) is recommended for students whose math background is good, and required for later entrance to graduate programs with a molecular orientation. It is also a prerequisite for Physical Chemistry. MTH 111, 112 is required for PHY 113, 114 but can be taken concurrently with it.

Second Year			
BIO 210, 211	Biology of Populations with Lab		4
BIO 234, 244	Biology of Cells with Lab	4	
CHM 251, 252	Organic Chemistry	3	3
CHM 263, 264	Bio-organic Chemistry Lab	1	1
PHY 101, 102**	Introduction to Physics	3	3
	Humanities/Social Science Electives	6	6
		17	**17**

**
PHY 107, 108 or PHY 113, 114 may be substituted for PHY 101, 102.

Third and Fourth Years
(common to both options)

Course selection for the third and fourth years of the biology major must be determined in consultation with an advisor. During the third and fourth year all majors are required to elect at least 18 credits in upper-division biology courses (courses numbered 300 or higher). Upper-division courses in physics, chemistry, engineering or mathematics may be substituted with the written approval of the advisor and the department chairperson prior to registration in the course. A maximum of 3 credits in biology proseminar may be included in the 18 credits. The requirements of the College of Arts and Sciences must also be met prior to graduation.

Students who have completed the first two years of the biology major may elect to concentrate in courses dealing with the ecology of the coastal zone, its estuaries and inshore waters.

Junior/Senior Electives for Marine Biology Option

Eighteen credits should be elected from upper-division biology courses. At least 12 of these credits must come from the following list of courses.

BIO 317
Biology of Invertebrates

BIO 413
Biology of Fishes

BIO 416
Biology of Algae

BIO 424
Biology of Animal Parasites

BIO 429
Aquaculture

BIO 454
Biology of Sharks

BIO 471
Marine Microbiology

BIO 517
Advanced Biology of Invertebrate Animals

BIO 531
Advanced Ichthyology

BIO 540
Environmental Physiology of Marine Animals

BIO 545
Biological Oceanography

BIO 101 three credits
General Biology I
3 hours lecture

The content of this course deals with the basic concepts of biology and their implications in human affairs. Not offered for credit to biology majors. Satisfies natural science requirement.

BIO 102 three credits
General Biology II
3 hours lecture
Prerequisite: BIO 101 or permission of instructor

Continuation of BIO 101. Not offered for credit to biology majors. Satisfies natural science requirement.

BIO 103 three credits
Topics in Biology
3 hours lecture
Prerequisite: BIO 101 or permission of instructor

Study in specific areas of biological science such as Human Genetics, Microbes, and the Insect World. Not offered for credit to biology majors.

BIO 111 four credits
Introduction to Human Physiology
4 hours lecture

Introduction to the general physiological principles involved in human body functions with homeostasis as the unifying theme. Not offered for credit to biology majors.

BIO 112 three credits
The Ocean Environment
3 hours lecture

The study of the ocean environment as an integrated ecosystem: The biology of marine organisms and the related physical, chemical and geological processes of the sea with attention given to the exploitation of marine resources and pollution. Not offered for credit to biology majors.

BIO 113 three credits (Honors)
The Darwinian Revolution

An analysis of the claims, evidence and methods of Darwinian evolutionary biology based upon an examination of Darwin's *On the Origin of Species* (1st ed., 1859).

BIO 121, 122 three credits each
Biology of Organisms I, II
3 hours lecture

The first course for biology majors is an introduction to structure, function and behavioral adaptations in the world of living organisms. During the initial half of this two semester course cell origin, structure and chemistry, basic cellular physiology and genetics are emphasized. The second semester covers the diversity and evolutionary relationships of living organisms, culminating in an in-depth study of a selected ecosystem. Pre-professional aspects are emphasized during both semesters for the biology major student. Field experiences, writing and problem-solving are integrated into the course work.

BIO 125 three credits
Horticulture

Integrates applied aspects of horticulture (plant propagation, cultivation, landscaping styles, soils, plant materials) with inquiries into the basic structure, reproduction and other life processes of plants. Work in the greenhouse provides an opportunity to put theoretical questions and topics into practice. Students will develop a sense of the value of plants and gardens in current society; an understanding of horticulture and its relationship to science, technology and arts; and the confidence to work successfully with plants, gardens and landscapes.

BIO 131, 132 one credit each
Biology of Organisms Laboratory I, II
1 hour laboratory lecture, 2 hours laboratory

The biology of organisms laboratory courses cover two semesters and are designed to provide the student with hands-on experience in investigative techniques and problem-solving. Students work closely with faculty and staff in specialized laboratory investigations in various biological disciplines.

BIO 154 three credits
Fundamentals of Biology
3 hours lecture
Prerequisite: Nursing major

Specifically designed to meet the needs and schedule of the nursing major and covers the breadth of biology in one semester. The ideology and approach of the biological sciences, the chemical and physical foundations of living systems, energy transformations, the origin and diversity of life, Mendelian and molecular genetics, evolution, and population and community ecology.

BIO 210 three credits
Biology of Populations
3 hours lecture
Prerequisites: BIO 121, 122, 131, 132, 234, 244

An introduction to the biology of groups of individuals of the same specific kind as units of evolutionary and ecological change: the characterization, origin, and maintenance of phenotypic and genetic variety and the selective and chance processes that shape this variation and effect adaptation, speciation, and the observed geographical and temporal distributions of different kinds of organisms.

BIO 211 one credit
Biology of Populations Laboratory
3 hours laboratory
Corequisite: BIO 210

Experimental approaches to selected topics in population biology are investigated by linking observations on laboratory populations with expectations generated by student-designed computer simulations using BASIC programming. Topics include selection, genetic drift, heritability, and spatial and temporal dispersion patterns.

BIO 216 three credits
Biology of Aging
3 hours lecture
Prerequisite: BIO 101 or equivalent

The biological background to the aging process will be presented. This will include a description of the theories of aging and the developmental and physiological changes that occur throughout the aging process. Science elective for Liberal Arts students, free elective for Biology majors.

BIO 221 three credits
Anatomy and Physiology I
3 hours lecture/Fall semester
Prerequisite: BIO 101

A systematic study of the human body emphasizing structural and functional relationships. Topics include cellular activity and tissue organization. The skeletal, muscular and cardiovascular morphology and function are presented.

BIO 222 three credits
Anatomy and Physiology II
3 hours lecture/Spring semester
Prerequisite: BIO 221

Continuation of BIO 221. Study of the structure and function of the respiratory, digestive, nervous, urinary, endocrine and reproductive systems.

BIO 223 one credit
Anatomy and Physiology Laboratory I
1 hour laboratory lecture, 2 hours laboratory

Emphasis is placed on methods of measuring physiological processes. Study of body structure is accomplished by dissection of animal specimens and by use of tissue materials.

BIO 224 one credit
Anatomy and Physiology Laboratory II
1 hour laboratory lecture, 2 hours laboratory
Prerequisite: BIO 223

Continuation of BIO 223.

BIO 234 three credits
Biology of Cells
3 hours lecture
Prerequisites: two semesters Chemistry (concurrent enrollment or credit in Organic Chemistry recommended)

A study of energy transformations, gene expression and regulation, and the function of cells and their organelles. The course emphasizes how function follows structure, particularly at the level of macromolecules.

BIO 244 one credit
Biology of Cells Laboratory
1 hour laboratory lecture, 2 hours laboratory
Corequisite: BIO 234

A laboratory course emphasizing the biochemical, spectroscopic and microscopic procedures necessary to study cell function.

BIO 252 four credits
Medical Microbiology
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory/Fall Semester
Prerequisites: college Chemistry and college Biology, or permission of instructor; open only to students enrolled in the College of Nursing

Fundamentals of microbiology are presented to prepare students interested in health science field. Topics included are basic microbiology, control of microorganisms, host resistance and pathogenic microorganisms.

BIO 314 four credits
General Ecology
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisites: BIO 121, 122

General ecology considers the general field of interrelationships between organisms and their environments with emphasis on the biology of populations, and includes laboratory and field studies of terrestrial, fresh water and marine environments. Extended field trips, some of which may be held on weekends and/or holidays, are an integral part of this course.

BIO 316 three credits
Descriptive Oceanography
3 hours lecture

An introduction to the field of oceanography. Physical, chemical, geological and biological aspects are emphasized to provide a basic foundation for further work in biological oceanography.

BIO 317 four credits
Biology of Invertebrates
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisites: BIO 121, 122

This course presents an intensive survey of the taxonomy, taxonomy and functional morphology of the major invertebrate phyla, with special reference to adaptations of the intertidal marine invertebrates of the North Atlantic coast. Field trips to the diverse habitats of the area constitute an integral part of the laboratory.

BIO 318 four credits
General Entomology
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisites: BIO 121, 122

This is an introductory survey course in the study of insects. The taxonomy of families will be emphasized in lectures. Studies will also include the structure, habits, physiology and ecology of insects. During some laboratories, field trips will be conducted.

BIO 320 four credits
Embryology
3 hours lecture, 3 hours laboratory, 1 hour laboratory lecture
Prerequisite: Biology core

A description of reproductive and embryological principles, followed by a study of typical vertebrate and invertebrate embryology. The organogenesis of the major vertebrate systems will be described. The laboratory will include the microscopic study of vertebrate embryos and the observation of the development of selected living vertebrate and invertebrate embryos.

BIO 321 four credits
General Microbiology
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisite: Biology core

This course explores the nature and diversity of microorganisms. Special emphasis is placed on bacterial cytology, nutrition, physiology, and growth. Topics on the significance of microorganisms in the environment and the evolutionary relationships of microorganisms are included.

BIO 327 three credits
Molecular Biology
3 hours lecture
Prerequisites: BIO 234, 244

A lecture course on the experimental basis of contemporary molecular biology. Topics emphasized are the organization of the eukaryote genome, cloning and sequencing of DNA and regulatory processes effected through protein/DNA interactions:

BIO 330 (PHL 330) three credits
Evolutionary Approaches to Epistemology
Prerequisites: BIO 113, 210, 437 or equivalent; and PHL 301 or equivalent

A critical exploration of the interaction between Darwinian evolutionary biology and traditional epistemology and the impact of the two fields on one another. The course will demonstrate, with the students as active participants, the nature and fertility of an interdisciplinary inquiry.

BIO 333 four credits
General Genetics
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisite: Biology core

This course is introductory to the science of heredity. The lectures present an integrated concept of the gene provided from the study of Mendelian and molecular genetics. Selected topics in quantitative inheritance, and human genetics are included.

BIO 350 four credits
Survey of Plant Kingdom
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory and field trips
Prerequisite: One year of Biology of Organisms or equivalent

The phylogenetic relationship among members of the plant kingdom will be studied with an emphasis on evolutionary trends among plant groups rather than on individual plant species. Toward this goal the cytology, anatomy and morphol-

ogy of monerans through the angiosperms will be covered. Representatives of most groups will be studied in the laboratory and some will be observed in their natural habitats during two field trips.

BIO 370 four credits
Animal Physiology
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisites: Biology of Cells (or equivalent); Organic Chemistry

A study of the general principles of animal physiology integrating molecular, cellular, organ system and whole organism approaches. The accompanying laboratory will provide skill in the techniques used in animal physiological investigations.

BIO 411 one to three credits
Proseminar: Current Topics in Biology
1 to 3 hours

Students with senior standing (or others with consent of the instructor) report on and discuss current biological problems as presented in principle journals, abstracts and reviews. The work of each seminar is usually built upon a single unifying content area.

BIO 413 four credits
Biology of Fishes
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisites: BIO 121, 122

Field trips and extensive laboratory work are emphasized in this course. The life histories, ecology and classification of the fishes of the coastal and inland waters of the northeastern states are studied in detail.

BIO 415 four credits
Comparative Vertebrate Anatomy
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory

Structure and phylogeny of vertebrates. Laboratory work illustrates evolutionary trends and specializations.

BIO 416 four credits
Biology of Algae
3 hours lecture, 1 hour laboratory/lecture, 3 hours laboratory
Prerequisite: One year of Biology of Organisms or equivalent

The freshwater and marine algae of the northeastern United States are surveyed with an emphasis on their taxonomy, evolution and ecology. The laboratory focuses upon the identification, morphology and ecology of all major algal groups. Extended field trips into Buzzards Bay, Vineyard Sound, and the north shore are an integral part of the course.

BIO 419 four credits
Biological Scanning Electron Microscopy
1 hour lecture, 6 hours laboratory
Prerequisite: Permission of instructor

Theory and techniques of scanning electron microscopy, including optical theory, photographic darkroom techniques, and specimen preparation. Students will be expected to complete a project, the results of which will be presented in written and finished photographic form.

BIO 421 four credits
Developmental Biology
3 hours lecture, 1 hour laboratory lecture, 3 hours laboratory
Prerequisite: Biology core, especially biology of cells

The molecular, cellular and morphogenetic aspects of embryology, organogenesis and other developmental phenomena of animals are considered in the lecture. Some aspects of plant development are discussed. The laboratory includes experiments that demonstrate the morphogenetic activities of the cell. Students are encouraged to design their own experiments.

BIO 422 three credits
Immunology
3 hours lecture
Prerequisites: BIO 234 or equivalent, CHM 251

Molecular and cellular basis of immune phenomena with emphasis on experimental foundations of current models. Differentiation of T and B lymphocytes, cell-cell interactions, antibody structure and function with underlying genetic rearrangements, mechanisms of resistance to disease and immune dysfunction, including AIDS. Understanding of research techniques and research process is promoted.

BIO 424 four credits
Biology of Animal Parasites
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory

An introductory course in parasitology emphasizing the more important protozoan, helminth, and arthropod parasites of medical, veterinary, and marine significance. Laboratory exercises include practical and experimental techniques.

BIO 429 four credits
Aquaculture
3 hours lecture, 3 hours laboratory
Prerequisites: Biology core, BIO 314, BIO 317, BIO 413, or BIO 416, or permission of instructor

The study of aquaculture in a global context with emphasis upon a few selected forms to serve as working models. The course includes a consideration of both theoretical and practical aspects of aquaculture. Whenever possible, the laboratory work will emphasize hands-on experience in laboratory and field aquaculture techniques. A student team approach will initiate, develop and/or maintain an aquaculture project.

BIO 430 four credits
Introduction to Biological Statistics
3 hours lecture, 1 hour laboratory
lecture, 2 hours laboratory
Prerequisite: MTH 101, 102 or equivalent, upper division biology standing

Statistical concepts for the planning of experiments and the summarization of numerical data form the basis of this course. Lectures emphasize probability, testing of hypothesis and the application of different, statistical concepts and problems.

BIO 435 three credits
Methods and Materials for Secondary School Teachers of Biology
Free elective credit only
Hours will be arranged

This course is designed for future teachers of biology. The course emphasizes modes of inquiry, methods of research and experimentation, and teaching strategies.

BIO 437 three credits
Evolutionary Biology
3 hours lecture
Prerequisites: Biology Core

An overview of contemporary evolutionary biology with an emphasis on evolutionary processes. A non-introductory study of the interplay in time and space of genetic variety, ecological opportunity and chance resulting in the evolutionary change in groups of organisms.

BIO 438 one credit
Evolutionary Biology Laboratory
3 hours laboratory
Prerequisites: Biology Core
Corequisite: BIO 437

Computer models of aspects of evolutionary processes will be designed. The models will selectively address problems in such areas as selection and polygenic inheritance, genetic drift, concerted evolution in multigene families, differentiation of protein-coding nucleotide sequences, molecular clocks, sex, stochastic processes in macroevolution and wild animal conservation genetics. A Biology of Populations-level (BIO 211) knowledge of BASIC programming is expected.

BIO 440 two credits
Research Project
Hours will be arranged.

An advanced research project in an advanced student's field of general interest conducted under the supervision of an appropriate staff member, in the form of independent research leading to the solution of a problem.

BIO 441 two credits
Research Project

Continuation of BIO 440.

BIO 442 three credits
Advanced Genetics
3 hours lecture
Prerequisite: BIO 337 or 333

A historical perspective of the concepts leading to the present theory of gene structure and function is considered. The rigorous experimental evidence supporting this synthesis is reviewed by extensive reading and discussion of original publications. Particular emphasis is placed on papers published since 1940 and having direct bearing in elucidating the structure and function of the gene.

BIO 452 three credits
Virology
Prerequisites: BIO 234, 244 or permission of instructor

The nature of the virus as both an evolutionary entity and an obligatory cellular parasite. The structure and replicative strategies of representative viruses are studied. The approach is molecular and stresses the interaction of the viral genome with cytoplasmic and nuclear elements of the host cell.

BIO 454 three credits
Biology of Sharks
Prerequisite: Permission of instructor

The morphology, physiology, behavior and evolutionary history of the most ancient group of living jawed fishes. The most unusual aspects of these fish, such as modes of reproduction, osmotic regulation, feeding mechanisms and sensory physiology, will be stressed throughout.

BIO 470 four credits
Introductory Mycology
3 hours lecture, 1 hour laboratory lecture,
2 hours laboratory

Introduction to the taxonomy and biochemical activities of the fungi. The laboratory exercises involve the isolation, identification, and physiological characterization of some of the community encountered marine and terrestrial fungi.

Graduate Courses in Biology

Note: Some graduate courses are open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

BIO 471 four credits
Marine Microbiology
3 hours lecture, 1 hour laboratory lecture

Taxonomy, physiology, and the role of heterotrophic microorganisms in the marine environment. The viruses will also be considered. Emphasis will be placed on the activities of the viruses, bacteria, and the fungi in the marine environment in the laboratory, exercises will be conducted on the methods of enumeration, detection of selected physiological groups, uptake and deputation of microorganisms by shellfish, marine biodeterioration, and the influence of environmental parameters on the growth and activities of marine microorganisms.

BIO 495 three credits
Independent Study
Terms and hours to be arranged.
Readings and reports on special topics.

BIO 496 three credits
Directed Study
Terms and hours to be arranged.
Readings and reports on special topics.

BIO 900
Contract Learning

BIO 510 four credits
Marine Biotechnology
3 hours lecture, 5 hours laboratory, includes field trips
Prerequisites: Organic Chemistry, B.S. in Natural Science or permission of instructor

Designed for persons who wish to participate in research and development within biotechnology. This course features extensive hands-on laboratory work with current techniques and experimental approaches, integrated with an exposition of the principles underlying the techniques. Students will visit marine personnel who are actively engaged in current aspects of biotechnology.

BIO 511 one to three credits
Graduate Seminar in Biology
Prerequisite: Graduate standing or permission of instructor

Student discussions of selected topics will be carried out under the supervision of a faculty member. Topics to be announced in advance of seminar.

BIO 517 four credits
Advanced Biology of Invertebrates
3 hours lecture, 4 hours laboratory
Prerequisite: BIO 317

Considers the diversity and functional roles in invertebrate communities. Laboratory and field projects form an integral part of this course

BIO 518 three credits
Biogeography
3 hours lecture
Prerequisite: BIO 314 or equivalent, or consent of instructor

Biogeography is the study of present and past global distributions of plant and animal taxa in terrestrial, marine and freshwater habitats. Distributional patterns will be considered in relation to changes of the physical environment over geological time, such as in global patterns of climate and resources. The evolution of recent association of organisms will also be examined in relation to ecological interactions between organisms, such as competition and predation.

BIO 520 three credits
Animal Behavior
3 hours lecture
Prerequisite: Senior or graduate standing and consent of instructor

Comparative and evolutionary aspects of behavior of invertebrate and vertebrate animals are studied. Structure and function of nervous systems, simple behavioral patterns including reflexes and other forms of innate behavior as well as more complex patterns including learning and social behavior are stressed.

BIO 525 one credit
Graduate Student Seminar
Prerequisite: graduate status

Each student will present a seminar related to the current semester's theme and based on several contemporary publications. Students are responsible for preparing a comprehensive bibliography, an abstract and evaluations of peers' seminars. (One semester required; maximum two credits towards Master of Science degree.)

BIO 531 four credits
Advanced Ichthyology
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisite: Graduate standing or consent of instructor

Advanced Ichthyology deals with studies of fish phylogeny and classification, physiological problems peculiarly faced by fish, and aspects of fisheries hydrography. The laboratory stresses independent work on morphological, physiological, and systemic studies of fish. Student participation in seminars is expected.

BIO 535 four credits
Analysis of Biological Data
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisite: Introduction to Biological Statistics or equivalent

The processing and analysis of biological and especially ecological data are the primary objectives of this course. Topics include problems encountered in processing and handling of data, distribution and transformation, associations, computer simulations, non-parametric methods, and usefulness and limitation of multivariate methods.

BIO 537 three credits
Evolutionary Biology
3 hours lecture
Prerequisites: Biology core, BIO 314

An analysis of the mechanisms and paths of evolutionary change emphasizing the quantitative genetics and ecological context of populations. Topics include natural selection, genetic drift, gene flow, mutation, mating pattern, adaptation, speciation, molecular evolution, macro-evolution, classification and the patterns of evolutionary change in space (biogeography) and time (fossil record).

BIO 538 one credit
Evolutionary Biology Laboratory
3 hours laboratory
Corequisite: BIO 537

Computer modeling of selected aspects of the evolutionary process.

BIO 540 four credits
Environmental Physiology of Marine Animals
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisite: Graduate standing or consent of the instructor. Both Physiology and Ecology are highly recommended.

Considers the physiological mechanisms of adaptation to the variety of ecological parameters in the marine environment that result in stress in marine animals. The potential effect of environmental perturbations on these physiological adaptations will also be considered. The laboratory encourages independent projects leading to the preparation and presentation of a research paper.

BIO 545 four credits
Biological Oceanography
3 hours lecture, 1 hour laboratory lecture, 2 hours laboratory
Prerequisite: BIO 316 or equivalent, or consent of instructor

Biological Oceanography is the study of the productivity, dynamics, and structure of biological communities of the open sea and near shore marine waters. Functional groups of pelagic organisms such as bacterioplankton, protozooplankton, phytoplankton, zooplankton, ichthyoplankton, macronekton, marine mammals and sea birds, and benthic groups such as seaweeds and macroinvertebrates will be considered, as will specific marine habitats such as intertidal zones, coral reefs, estuaries, continental shelves, and the deep sea. There will also be examinations of processes contributing to food chain trophodynamics, detrital cycling, seasonality, and biogeography. Laboratory sessions will include extensive microscopic examination of various plankton groups, use of chemical and microscopic technique to define populations, and field trips in Buzzards Bay on UMass Dartmouth's research vessel.

BIO 593 one - three credits
Graduate Research Project
Prerequisite: graduate standing or consent of instructor

Directed research for graduate students. Hours by arrangement. Spring and Fall semester.

BIO 595 three credits
Graduate Independent Study

Terms and hours to be arranged.

BIO 596 three credits
Graduate Direct Study

Terms and hours to be arranged.

BIO 599 - not to exceed ten credits
Graduate Thesis

Chemistry

Undergraduate chemistry at UMass Dartmouth provides the student with the theoretical and practical expertise necessary for success in a wide variety of careers, consistent with the nature of chemistry as the central science. Chemists pursue a broad spectrum of rewarding professional careers ranging from production supervisors in the chemical or petroleum industries to physicians and patent attorneys. The Chemistry Department is professionally accredited by the American Chemical Society and provides individualized attention and instruction usually encountered only in a small-college setting. Class sizes, especially at the junior and senior levels, are usually small, affording the student ample opportunities for interaction with the faculty.

Teaching and research facilities of the Department of Chemistry are equipped with modern instrumentation. Recent acquisitions include a Bruker 300MHz FT-NMR, an NRL-Sippican Fiber-Optic Analyzer, a Cynosure SLL250 Dye Laser Spectrometer; a Hewlett-Packard 5890A GC-mass spectrometer with data system; a Nicolet 8210 Fourier-Transform IR Spectrometer; a Perkin-Elmer 1310 infrared spectrophotometer with microprocessor interface; a Varian DMS 90 UV-visible spectrophotometer; a Varian EM 360A NMR with lock/decoupler and variable temperature probe; a Thermo Jarrel Ash Video 12 atomic absorption spectrophotometer equipped with flame and nonflame atomizers; high-performance liquid chromatographs with UV-vis, electrochemical, refractive index, and radioisotope detectors; a Princeton Applied Research Voltammetric Analyzer Model 264; a Beckman LS 5801 scintillation counter; Sorvall OTD B-50 Ultracentrifuge; a Perkin Elmer Delta 4 Differential Scanning Calorimeter and data station.

This new instrumentation augments existing equipment, which includes infrared, UV-visible, fluorescence, atomic absorption, and mass spectrometers, preparative and analytical gas and liquid chromatographs, a capillary gas chromatograph, thermal analysis instrumentation (TGA, DTGA, and DSC systems), Parr hydrogenation apparatus, electroanalytical instrumentation, and related apparatus for chemical and biochemical research. In addition, an electronics shop and electron microscope facilities are shared with other science departments.

The department, consistent with university policies, emphasizes computer use. The department maintains a variety of computers and accessories, including IBM and Macintosh microcomputers, and IBM-750 multicolor digital plotter, terminals, modems, and printers. The university maintains VAX 8650 and VAX 8700 mainframes for research and instructional use.

The Department of Chemistry at UMass Dartmouth also offers a graduate program leading to the degree of Master of Science in Chemistry and, in conjunction with UMass Amherst, offers a cooperative Ph.D. program.

Faculty and Fields of Interest

Mark A. Altabet marine chemistry, geochemistry, biogeochemistry

Alan H. Bates inorganic and organometallic chemistry

Russell R. Bessette electroanalytical chemistry and high energy density, high capacity battery systems

Donald W. Boerth physical organic chemistry, theoretical chemistry

Joseph C. Deck (chairperson) chemical education

William L. Dills, Jr. biochemistry of carbohydrates, metabolism and metabolic effects of carbohydrate analogues

Juanita N. Gearing marine analytical chemistry, analysis of environmental contaminants

James A. Golen physical inorganic chemistry, synthesis and molecular spectroscopy of inorganic compounds

Gerald B. Hammond organic chemistry, organofluorine chemistry, natural products, ethnomedicinal chemistry

Robert J. Hooper coordination chemistry

Michele I. Mandrioli transition metal chemistry and magnetic resonance

Emmanuel C.A. Ojadi chemical physics, laser spectroscopy and photochemistry

Timothy W. O'Sullivan inorganic and organometallic chemistry, science education, inorganic electrochemistry

Bal-Ram Singh physical biochemistry, structure-function relationships of biological macromolecules

J. Donald Smith biochemistry of phospholipids and phosphonic acids, metabolic regulation

Timothy C. K. Su physical chemistry, ion-molecule reactions, polymer science

Margaret A. Wechter analytical radiochemistry, high performance liquid chromatography of fuel components

Chang-Ning Wu organic chemistry, polymer synthesis and characterization, and liquid crystal compounds

Chemistry Major
BS degree

The programs for chemistry majors are designed to provide a solid foundation in the theoretical knowledge and practical laboratory skills necessary for a variety of professional careers. The programs prepare students for graduate study, medical or professional school, teaching, technical sales, technical writing, and industrial or government employment.

In order to fit the needs of the individual student, the department offers to chemistry majors four different options. The courses prescribed for each of these options and the career opportunities available upon completion of each major are described below.

Chemistry Major
Conventional Option

This option prepares a student for graduate work in various fields of chemistry both pure, such as organic, inorganic, physical, analytical, or biochemistry; and applied, such as clinical, forensic, polymer, or environmental chemistry. It may also be supplemented by graduate work in an entirely different area such as law, library work, or business, leading to a career as a research chemist, chemical patent attorney, librarian, science illustrator, technical writer, or executive in the chemical industry. In addition, this option will prepare a student for employment in the chemical industry as a chemical technician, salesperson, purchasing agent, market analyst, production supervisor, etc., or in education as a secondary school teacher. A number of free electives are included to provide flexibility in the program to suit the student's special interest.

Requirements		Semester Credits	
First Year		**First**	**Second**
CHM 151, 152	Principles of Modern Chemistry	3	3
CHM 165, 166	Introduction to Experimentation	2	2
CHM 172	Introduction to Computer Programming for Chemists		1
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities or Social Science	3	3
		15	**16**
Second Year			
CHM 251, 252	Organic Chemistry I, II	3	3
CHM 265, 266	Organic Chemistry Lab I, II	2	2
MTH 211	Analytical Geometry and Calculus III	4	
CHM 272	Descriptive Inorganic Chemistry		3
PHY 113, 114	Classical Physics I, II	4	4
	Humanities, Social Science or Literature	3	
	Free Elective		3
		16	**15**
Third Year			
CHM 305	Modern Methods of Chemical Analysis	3	
CHM 307	Procedures of Chemical Analysis	2	
CHM 315, 316	Physical Chemistry I, II	4	4
CHM 318	Physical Chemistry Measurements I		2
CHM 422	Computer/Math Methods in Physical Science		3
	Humanities, Social Science or Literature	3	3
	Free Electives	3	3
		15	**15**
Fourth Year			
CHM 319	Physical Chemistry Measurements II	2	
CHM 401, 402	Chemistry Seminar	1/2	1/2
	Humanities, Social Science or Literature[1]		6
	Advanced Chemistry Electives[2]	6	3
	Free Electives	6	6
		14 1/2	**15 1/2**
	Total credits:		**122**

[1]The Humanities/Social Sciences requirement of 18 credits must consist of at least 6 credits of Humanities and 6 credits of Social Sciences. Note that there is no separate foreign language requirement for the BS degree. Literature requirement: 6 credits. Literature must be in the English language.

[2]Students who wish to be certified by the American Chemical Society must include among their advanced chemistry electives CHM 552, CHM 431, and CHM 433. Students who elect to do senior research may count either CHM 491 or CHM 492 toward certification. Similarly, students may receive certification credit for one term of the 400-level biochemistry sequence. The ACS also recommends that some advanced course work be in polymer chemistry.

Chemistry Electives

CHM 352
Organic Preparations
CHM 362
Introduction to Biochemistry
CHM 411
Biochemistry I
CHM 412
Biochemistry II
CHM 414
Biochemistry Laboratory
CHM 421
Organic Mechanisms
CHM 426
Polymer Synthesis and Characterization
CHM 431
Principles of Inorganic Chemistry
CHM 432
Organic Analysis
CHM 433
Inorganic Chemistry Laboratory
CHM 444
Applied Spectroscopy
CHM 491
Introduction to Research I
CHM 492
Introduction to Research II
CHM 510
Advanced Organic Chemistry
CHM 511
Biochemistry I
CHM 512
Biochemistry II
CHM 520
Advanced Inorganic Chemistry
CHM 521
Organic Mechanisms
CHM 523
Thermodynamics
CHM 525
Theoretical Organic Chemistry
CHM 526
Polymer Synthesis and Characterization
CHM 527
Electronic Structure of Atoms and Molecules
CHM 529
Physical Biochemistry
CHM 531
Chemical Kinetics
CHM 533
Statistical Mechanics
CHM 542
Quantum Chemistry
CHM 544
Applied Spectroscopy
CHM 550
Special Topics in Chemistry
CHM 551
Electroanalytical Chemistry
CHM 552
Instrumental Methods of Analysis
CHM 553
Nuclear and Radiochemistry
CHM 554
Molecular Spectra and Structure
CHM 555
Methods of Chemical Separation
CHM 556
Magnetic Resonance Spectroscopy
CHM 560
New Synthetic Methods
CHM 562
Natural Products

Chemistry Major
Biochemistry Option

The biochemistry option for the BS degree in chemistry is designed for those students with dual interests in biology and chemistry. A student receiving this degree will be qualified to enter industry as a BS biochemist or, with the selection of several education courses, will be well qualified as a high school science teacher. Students with the chemistry major (biochemistry option) will be able to enter graduate school in any of the areas of chemistry, biochemistry, molecular biology, pharmacology, nutrition or other life science programs. The following curriculum conforms to that recommended by the American Society of Biochemistry and Molecular Biology for an undergraduate degree in biochemistry.

Requirements		Semester Credits	
First Year		**First**	**Second**
CHM 151, 152	Principles of Modern Chemistry	3	3
CHM 165, 166	Introduction to Experimentation	2	2
CHM 172	Introduction to Computer Programming for Chemists		1
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities or Social Science[1]	3	3
		15	**16**
Second Year			
CHM 251, 252	Organic Chemistry I, II	3	3
CHM 265, 266	Organic Chemistry Lab I, II	2	2
MTH 211	Analytical Geometry and Calculus III	4	
BIO 234	Biology of Cells[2]	3	
BIO 244	Biology of Cells Lab[2]	1	
PHY 113, 114	Classical Physics I, II	4	4
	Humanities, Social Science or Literature[1,3]		6
		17	**15**
Third Year			
CHM 315, 316	Physical Chemistry I, II	4	4
CHM 411, 412	Biochemistry I, II	3	3
CHM 414	Biochemistry Laboratory[4]		3
CHM 305	Modern Methods of Chemical Analysis	3	
CHM 307	Procedures of Chemical Analysis	2	
	Free Elective		3
	Humanities, Social Science or Literature[1]	3	3
		15	**16**
Fourth Year			
CHM 529	Physical Biochemistry	3	
CHM 401, 402	Chemistry Seminar	1/2	1/2
	Biology/Chemistry Electives	6	3
	Humanities, Social Science or Literature[1]	3	3
	Free Electives	3	6
		15 1/2	**12 1/2**
		Total credits:	**122**

[1]The Humanities/Social Sciences requirement of 18 credits must consist of at least 6 credits of Humanities and 6 credits of Social Sciences. Note that there is no separate foreign language requirement for the BS degree. It is strongly recommended that the humanities requirement be satisfied by taking at least 1 and preferably 2 years of French, German or Russian. Literature requirement: 6 credits.

[2]Students with weak backgrounds in biology may need to take BIO 121, 122, 131, 132 before attempting subsequent biology courses.

[3]Students who have not definitely decided on the biochemistry option may instead take CHM 272 in order to retain the option of choosing the conventional chemistry option. If students remain in the Biochemistry Option, then CHM 272 would become a free elective.

[4]Students who do not contemplate doing undergraduate research (CHM 491-492) may postpone CHM 414 until their senior year.

Biochemistry Option, continued.

Biology Electives
(2 required)[5]

BIO 321
General Microbiology
BIO 327
Molecular Biology
BIO 333, 334
General Genetics
BIO 411
Proseminar: Current Topics in Biology
BIO 419
Biological Scanning Electron Microscopy
BIO 421
Developmental Biology
BIO 460
Transmission Electron Microscopy

Chemistry Electives
(1 required)

CHM 318
Physical Chemistry Measurements I
CHM 319
Physical Chemistry Measurements II
CHM 421
Organic Mechanisms
CHM 422
Computer/Math Methods in Physical Science
CHM 431, 433
Inorganic Chemistry
CHM 442
Applied Spectroscopy
CHM 552
Instrumental Methods of Analysis
CHM 555
Methods of Chemical Separation

[5]Other advanced biology or chemistry courses may be substituted with the prior written permission of the biochemistry advisor.

Chemistry Major
Premedical Option

See next page for requirements

This option offers distinct advantages in efficiency, versatility, and rigor in preparation for students interested in further studies in a medical, dental, optometric, podiatric, osteopathic, or veterinary school. Programs for pre-med students should have the approval of Dr. Alan Bates, co-chairperson of the Pre-medical Advisory Committee. Premedical chemistry majors are certified for graduation by the Chemistry Department, just as are conventional majors.

Separately, premedical advising is offered for students in any major at UMass Dartmouth (see program description elsewhere in this *Catalogue*).

A wide variety of majors is appropriate for those intending to attend medical or veterinary school, with appropriate advising.

Chemistry Major
Premedical Option

Chemistry Major
BS-MS Option

Requirements

Semester Credits

		First	Second
First Year			
CHM 151, 152	Principles of Modern Chemistry	3	3
CHM 165, 166	Introduction to Experimentation	2	2
CHM 172	Introduction to Computer Programming for Chemists		1
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities, Social Sciences, or Literature[1, 5]	3	3
		15	**16**
Second Year			
CHM 251, 252	Organic Chemistry I, II	3	3
CHM 265, 266	Organic Chemistry Lab I, II	2	2
CHM 272	Descriptive Inorganic Chemistry		3
MTH 211	Analytical Geometry and Calculus III	4	
PHY 113, 114	Classical Physics I, II	4	4
BIO 234	Biology of Cells[1]	3	
BIO 244	Biology of Cells Lab	1	
BIO	Biology Elective[2]		3 or 4
	Humanities, Social Sciences, or Literature		3
		17	**18 or 19**
Third Year			
CHM 305	Modern Methods of Chemical Analysis	3	
CHM 307	Procedures of Chemical Analysis	2	
CHM 315, 316	Physical Chemistry I, II	4	4
CHM 318	Physical Chemistry Measurements I		2
BIO 333	General Genetics	4	
	Science Elective[3]		3 or 4
	Humanities, Social Sciences, or Literature	3	6
		16	**15 or 16**
Fourth Year			
CHM 401, 402	Chemistry Seminar	1/2	1/2
CHM 411	Biochemistry I	3	
	Humanities, Social Sciences, or Literature	3	3
	Free Electives[4]	6	9
		12 1/2	**12 1/2**
	Total credits:		**122-124**

This option offers advantages to capable students who are willing to devote their summers to furthering their education. For those going on to graduate work, it provides exposure to graduate courses and research, making the transition from BS to PhD level performance easier. For those going into teaching or industry, it yields a significant financial advantage.

[1]Students with weak backgrounds in biology may need to take Biology of Organisms (BIO 121, 122, 131, 132) before attempting subsequent biology courses. Therefore, these two H/SS courses may need to be moved to another year or to a summer session.

[2]Appropriate biology electives are BIO 320 (Embryology) or BIO 370 (Animal Physiology).

[3]Appropriate electives would be CHM 422 (Computer and Mathematical Methods in Physical Science), CHM 442 (Applied Spectroscopy), CHM 552 (Instrumental Methods of Analysis), BIO 327 (Molecular Biology) or BIO 421 (Developmental Biology).

[4]Appropriate electives would be CHM 412 (Biochemistry II), CHM 431 (Principles of Inorganic Chemistry) or CHM 491-492 (Introduction to Research I, II).

[5]The Humanities/Social Sciences requirement of 18 credits must consist of at least 6 credits of Humanities and 6 credits of Social Sciences. Note that there is no separate foreign language requirement for the BS degree. Literature requirement: 6 credits.

Chemistry Major
BS-MS Option

Requirements		Semester Credits		
First Year		**First**	**Second**	1. Humanities/Social Sciences require-
CHM 151, 152	Principles of Modern Chemistry	3	3	ment of 18 credits must consist of at
CHM 165, 166	Introduction to Experimentation	2	2	least 6 credits of Humanities and 6
CHM 172	Introduction to Computer Programming for Chemists		1	credits of Social Sciences. Literature requirement: 6 credits.
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4	
ENL 101, 102	Critical Writing and Reading I, II	3	3	2. Should a student desire to lighten his/
	Humnatities, Social Science or Literature	3	3	her course load in years three and four,
		15	**16**	Humanities/Social Sciences electives could be taken during Summer 2
Second Year				
CHM 251, 252	Organic Chemistry I, II	3	3	3. The student should select the BS-MS
CHM 265, 266	Organic Chemistry Lab I, II	2	2	option no later than the beginning of
MTH 211	Analytical Geometry and Calculus III	4		the fourth semester. Entrance into the
CHM 272	Descriptive Inorganic Chemistry		3	program requires approval of the
PHY 113, 114	Physics I, II	4	4	Chemistry Faculty. The student in the
	Humanities, Social Science or Literature[1]	3	3	program may elect to terminate the
	Free Elective		3	program after the seventh semester
		16	**18**	with the completion of the BS require- ments.
Third Year				
CHM 305	Modern Methods of Chemical Analysis	3		4. Students who select the BS-MS
CHM 307	Procedures of Chemical Analysis	2		program are eligible for teaching
CHM 315, 316	Physical Chemistry I, II	4	4	assistantships after completing the
CHM 318	Physical Chemistry Measurements I		2	requirements for the BS degree (after
CHM 422	Computer/Math Methods in Physical Science		3	the seventh semester) and for summer
CHM 402	Chemistry Seminar		1/2	stipends during the fourth and fifth
	Humanities, Social Science or Literature	6	3	summers.
	Free Electives	3	3	
CHM 492	Introduction to Research		3	5. At least 12 credits of the chemistry
		18	**18 1/2**	courses that count toward the MS degree must be at the 500 level.
Summer 3	Research			
	Free Elective		3	6. This program may be applied to the
			3	Biochemistry Option with appropriate modifications.
Fourth Year				
CHM 401	Chemistry Seminar	1/2		7. Students in the BS-MS program must
CHM 319	Physical Chemistry Measurements II	2		have and maintain a chemistry GPA of
	Advanced Chemistry Electives	6	9	at least 3.00 and an overall GPA of
CHM 491	Introduction to Research	3		2.75.
	Humanities, Social Science or Literature	3		
	Free Elective	3		
		17 1/2	**9**	
Summer 4	Research			
Fifth Year				
	Advanced Chemistry Electives	6	3	
CHM 600	Thesis Research	6	6	
		12	**9**	
Summer 5	Research and completion of thesis			
		Total credits:	**152**	

Requirements

Degree candidates who have a grade point average of at least 2.5 in the 100- and 200-level chemistry courses may request admission to the Chemistry or Biochemistry minors. This request must be approved by the Department Chairperson. A 2.0 grade point average in the courses listed will be required for completion of the minor.

Chemistry Minor

		Credits
CHM 151, 152	Principles of Modern Chemistry I & II	6
CHM 161, 162, 166	Introduction to Applied Chemistry I & II and Introduction to Experimentation II **OR**	4
CHM 165, 166	Introduction to Experimentation I & II	
CHM 251, 252	Organic Chemistry I & II	6
CHM 263, 264	Bio-Organic Chemistry Laboratory I & II **OR**	2-4
CHM 265, 266	Organic Chemistry Laboratory I & II	
CHM 305	Modern Methods of Chemical Analysis	3
CHM 307	Procedures of Chemical Analysis Laboratory	2
CHM 315	Physical Chemistry I **OR**	4
CHM 316	Physical Chemistry II (by permission)	
	Total	**27-29**

Biochemistry Minor

		Credits
CHM 151, 152	Principles of Modern Chemistry I & II	6
CHM 161, 162,166	Introduction to Applied Chemistry I & II and Introduction to Experimentation II **OR**	4
CHM 165, 166	Introduction to Experimentation I & II	
CHM 251, 252	Organic Chemistry I & II	6
CHM 263, 264	Bio-Organic Chemistry Laboratory I & II **OR**	2-4
CHM 265, 266	Organic Chemistry Laboratory I & II	
CHM 305	Modern Methods of Chemical Analysis **OR**	3 or 4
CHM 315	Physical Chemistry I*	
CHM 411, 412	Biochemistry I & II	6
	Total	**27-30**

*CHM 316, Physical Chemistry II, may be substituted for CHM 315, with permission.

CHM 100 four administrative credits
Preparation for College Chemistry
2 hours lecture, 1 hour recitation, 2 hours laboratory

Helps students overcome science, mathematics, and reasoning difficulties so that they may be successful in their required general chemistry course. The lecture and the laboratory are integrated to ensure that students have direct hands-on experience with most of the abstract ideas covered in the lecture. This course may not be used to fulfill the total credit requirements for graduation.

CHM 101 three credits
General Chemistry I
Lecture and recitation 4 hours

An introduction to the fundamental chemical laws and theories covering inorganic and organic chemistry with some descriptive chemistry. For non-science majors, nurses and technologists.

CHM 102 three credits
General Chemistry II
4 hours lecture and recitation
Prerequisite: CHM 101

Continuation of CHM 101.

CHM 103 one credit
General Chemistry Laboratory I
2 hours laboratory
Corequisite: CHM 101

An introduction to chemical laboratory techniques and methods including measurements and demonstrations of chemical principles.

CHM 104 one credit
General Chemistry Laboratory II
2 hours laboratory
Prerequisites: CHM 101, 103
Corequisite: CHM 102

Continuation of CHM 103.

CHM 130 three credits
Chemistry and the Environment
3 hours lecture

Available to anyone in the university, this course provides substantial treatment, with demonstrations, of the chemistry involved in consumer concerns (food additives, medicines, detergents, etc.), air and water pollution, elementary biochemistry, and the general question of power generation and utilization (fuel cells, solar energy conversion, nuclear energy, etc.). Credit applies to any science distribution requirements. No knowledge of chemistry is assumed, but it is hoped the student will have had high school chemistry or its equivalent. The course satisfies 3 credits of the Natural Science requirement.

CHM 131 three credits
Environmental Issues from a Chemical Perspective
3 hours lecture

Examines some of the major environmental problems facing society and the knowledge of chemistry needed to comprehend the problem and evaluate possible solutions. The course is available to anyone in the university. It will cover issues associated with chemical industry such as hazardous waste management and pesticide use as well as the risks and benefits of living in a chemical world. The course satisfies 3 credits of the Natural Science requirement.

CHM 132 three credits
Chemistry in Nutrition and Health
3 hours lecture

Nutrition and health issues facing people today and the chemistry needed to understand them. Topics to be discussed include health efforts of toxic substances, the science of proper diet, and some of the biochemistry needed to understand diseases such as cancer and AIDS. The course satisfies 3 credits of the Natural Science requirement.

CHM 151 three credits
Principles of Modern Chemistry I
4 hours lecture and recitation
Prerequisites: High school chemistry and algebra are required

Physical and chemical principles pertaining to the structure of chemical species and the nature, extent, and rates of chemical reactions. The details of stoichiometry, energy changes associated with chemical reactions, atomic and molecular structure, chemical bonding, and the phenomenon of chemical periodicity are emphasized and discussed in light of modern scientific theories. For science and engineering majors. Honors sections are offered.

CHM 152 three credits
Principles of Modern Chemistry II
4 hours lecture and recitation
Prerequisite: CHM 151

A continuation of CHM 151. The details of the behavior of solids, liquids, & gases, the types of intermolecular forces, colligative properties, gaseous equilibrium, aqueous equilibrium, thermodynamics, electrochemistry, kinetics, and nuclear chemistry are emphasized and discussed in light of modern scientific theories. For science and engineering majors. Honors sections are offered.

CHM 161 one credit
Introduction to Applied Chemistry I
1 hour lecture, 2 hours laboratory
Prerequisite: High school chemistry (with laboratory) is strongly recommended.
Corequisite: CHM 151

An introduction to chemical laboratory techniques and methods with emphasis on preparation, purification, and identification of compounds, elemental analysis, reaction stoichiometry, chemical ionization, thermochemistry, spectrophotometric techniques, and selective descriptive inorganic chemistry. Most experiments involve the identification of unknowns and statistical analysis of data.

The experiments in CHM 161 parallel the topics covered in CHM 151. A written laboratory report summarizing the procedure and results for each experiment is required. For science and engineering majors. Honors sections are offered.

CHM 162 one credit
Introduction to Applied Chemistry II
1 hour lecture, 2 hours laboratory
Prerequisites: CHM 151, 161
Corequisite: CHM 152

A continuation of CHM 161 with emphasis on molecular weight determination techniques, colligative properties, qualitative analysis, acid-base chemistry, properties of buffer solutions, chromatographic techniques, kinetics, solubility constant determination, and electrochemistry. Most experiments involve the identification of unknowns and statistical analysis of data. The experiments in CHM 162 parallel the topics covered in CHM 152. A written laboratory report summarizing the procedure and results for each experiment is required. For science and engineering majors. Honors sections are offered.

CHM 165 two credits
Introduction to Experimentation I
2 hours lecture, 4 hours laboratory
Prerequisite or Corequisite: CHM 151

Laboratory for chemistry and textile chemistry majors. An introduction to the basic techniques, methods and theory of chemical experimentation, and the recording, analysis, interpretation and reporting of experimental results, based on qualitative and quantitative chemical procedures. Skills of professional quality, needed to use apparatus for the accurate measurement of mass, volume, color intensity, etc., will be developed.

CHM 166 two credits
Introduction to Experimentation II
2 hours lecture, 4 hours laboratory
Prerequisite: CHM 165
Pre- or Corequisite: CHM 152

Continuation of CHM 165.

CHM 172 one credit
Introduction to Computer Programming for Chemists
1 hour lecture, 1 hour recitation
Prerequisites: CHM 151, 165
Corequisites: CHM 152, 166

An introduction to computer programming with emphasis on FORTRAN. Application to general chemistry problems and treatment of experimental data. May not be taken for credit by those who have received credit for CIS 261.

CHM 251 three credits
Organic Chemistry I
4 hours lecture and recitation
Prerequisite: CHM 152

A survey of the chemistry of carbon compounds and introduction to the basic principles of organic chemistry.

CHM 252 three credits
Organic Chemistry II
4 hours lecture and recitation
Prerequisite: CHM 251

Continuation of CHM 251.

CHM 263 one credit
Bio-organic Chemistry Laboratory I
1 hour lecture, 3 hours laboratory
Prerequisites: CHM 152, 162
Corequisite: CHM 251

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CHM 251 and is designed for biology and medical laboratory science majors.

CHM 264 one credit
Bio-organic Chemistry Laboratory II
1 hour lecture, 3 hours laboratory
Prerequisites CHM 251, 263
Corequisite: CHM 252

Continuation of CHM 263.

CHM 265 two credits
Organic Chemistry Laboratory I
1 hour lecture, 3 hours laboratory
Prerequisites: CHM 152, 166, or CHM 162

The synthesis of organic compounds and an introduction to the organic methods of separation, purification and identification. This course is coordinated with CHM 251 and is designed for chemistry and textile chemistry majors.

CHM 266 two credits
Organic Chemistry Laboratory II
1 hour lecture, 3 hours laboratory
Prerequisites: CHM 251, 265
Corequisite: CHM 252

Continuation of CHM 265.

CHM 272 three credits
Descriptive Inorganic Chemistry
2 hours lecture, 3 hours laboratory
Prerequisites: CHM 152, 166

A survey of the preparations and reactions of selected representative elements and transition metals. For each element the following points are treated: physical and chemical properties of the element; occurrence of the element in nature, its extraction and uses; important compounds and their uses, including industrial processes. An introduction to transition metal complexes. An advanced treatment of ionic equilibria including precipitation and complex-formation reactions.

CHM 305 three credits
Modern Methods of Chemical Analysis
3 hours lecture
Prerequisites: CHM 252, 266, and CHM 166; recommended: CHM 272

Introduction to chemical and instrumental analytical techniques. The theory of neutralization reactions in aqueous and nonaqueous systems. Oxidation-reduction and complex formation equilibria. Basic theory of electronic circuitry. Introduction to electrochemical methods. Introduction to chromatographic and spectrophotometric techniques.

CHM 307 two credits
Procedures of Chemical Analysis
1 hour lecture, 4 hours laboratory
Corequisite: CHM 305

Laboratory experimentation designed to develop the techniques and illustrate applications of analytical procedures to the solution of chemical problems.

CHM 315 four credits
Physical Chemistry I
4 hours lecture, 1 hour recitation
Prerequisites: CHM 152, MTH 211, two semesters of college physics

An introduction to the theoretical principles underlying chemical phenomena; applications of thermodynamics to chemical phenomena.

CHM 316 four credits
Physical Chemistry II
4 hours lecture, 1 hour recitation
Prerequisite: CHM 315

An introduction to quantum mechanics, symmetry, spectroscopy, chemical kinetics and transport processes.

CHM 318 two credits
Physical Chemical Measurements I
1 hour lecture, 4 hours laboratory
Prerequisites: CHM 305, 307, 315
Corequisite: CHM 316

Experiments in physical chemistry designed to test established theoretical principles which have been introduced in CHM 315 and 316. The experiments provide the student with basic experience in obtaining precise physical measurements of chemical interest.

CHM 319 two credits
Physical Chemical Measurements II
1 hour lecture, 4 hours laboratory
Prerequisites: CHM 305, 307, 316

Continuation of CHM 318.

CHM 352 three credits
Organic Preparations
1 hour lecture, 4 hours laboratory
Prerequisites: CHM 252, 266

A study of the more intricate synthetic procedures of organic chemistry including use of the literature for choice of optimum methods.

CHM 362 three credits
Introduction to Biochemistry
3 hours lecture
Prerequisite: CHM 252
Students may not receive credit for both CHM 362 and CHM 411, 412.

An introduction to the chemical properties of compounds of biological interest; bio-energetics and enzymology. A survey of the metabolism of proteins, carbohydrates, lipids, nucleic acids and other biosubstances.

CHM 370 three credits
Introduction to Chemical Engineering
3 hours lecture
Prerequisites: CHM 152, 315, or EGR 232

An introduction to the principles of chemical processes, with a special emphasis on material and energy balances. Departmental elective for majors in chemistry and mechanical engineering.

CHM 401 1/2 credit
Chemistry Seminar I
1 hour lecture

Lectures on current topics in chemistry from guest lecturers and students. Student must enroll for two semesters out of four in the junior and senior years.

CHM 402 1/2 credit
Chemistry Seminar II
1 hour lecture

Continuation of CHM 401.

CHM 411 three credits
Biochemistry I
3 hours lecture
Prerequisite: CHM 252, recommended: BIO 234
Students may not receive credit for both CHM 362 and CHM 411, 412

See description under CHM 511.

CHM 412 three credits
Biochemistry II
Prerequisite: CHM 411

See description under CHM 512.

CHM 414 three credits
Biochemistry Laboratory
1 hour lecture, 6 hours laboratory
Prerequisite: CHM 264 or 266, CHM 411
Prerequisite or corequisite: CHM 412
Recommended: CHM 305, 307, BIO 234, 244

Basic biochemical techniques and methods including spectrophotometry, electrophoresis, chromatography, ultracentrifugation and radioisotopic techniques and their application to amino acids and proteins, lipids and membranes, enzymes and nucleic acids.

Graduate Courses in Chemistry

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

CHM 421 three credits
Organic Mechanisms
Prerequisite or Corequisite: CHM 315

See description under CHM 521.

CHM 422 three credits
Computer and Mathematical Methods in Physical Science
Prerequisite: CHM 172 or CIS 261 or a working knowledge of FORTRAN 77
Recommended corequisite: CHM 316

See description under CHM 522.

CHM 426 three credits
Polymer Synthesis and Characterization
2 hours lecture, 4 hours laboratory
Prerequisites: CHM 252, 315; recommended, TEC 410

See description under CHM 526.

CHM 431 three credits
Principles of Inorganic Chemistry
3 hours lecture, offered each fall term
Prerequisite: CHM 316

The application of physical chemical principles to inorganic systems. Discussions of the chemistry of the representative elements utilizing thermodynamic principles and the modern theories of bonding and structure. Introduction to coordination chemistry.

CHM 432 three credits
Organic Analysis
2 hours lecture, 4 hours laboratory
Prerequisites: CHM 252, 266

Quantitative elemental and group determination on a microscale followed by a study of the systematic identification or organic compounds. Extensive laboratory work on unknowns is required.

CHM 433 one credit
Inorganic Chemistry Laboratory
1 hour lecture, 4 hours laboratory (biweekly)
Prerequisite: CHM 316
Corequisite: CHM 431

Synthetic and instrumental techniques currently used by inorganic chemists, including electrolytic, inert atmosphere, tube furnace and organometallic syntheses; ultraviolet-visible, nuclear magnetic resonance, infrared and mass spectrometry, magnetic susceptibility determination, as applied to a range of inorganic materials. This course is required for American Chemical Society certification and complements CHM 431.

CHM 442 three credits
Applied Spectroscopy
3 hours lecture
Prerequisites: CHM 252, 266, and 315

See description under CHM 544.

CHM 491 three to six credits
Introduction to Research I
9 to 18 hours laboratory
Prerequisite: Departmental permission

Chemistry majors who are doing well in formal course work and who have indicated research potential are encouraged to undertake an original investigation under the direction of a member of the chemistry faculty.

CHM 492 three to six credits
Introduction to Research II
9 to 18 hours laboratory

Continuation of CHM 491.

CHM 495
Independent Study

CHM 496
Directed Study

CHM 900
Contract Learning

CHM 505 one credit
Seminar in Science Education Research
Prerequisite: A major in one of the following sciences: biology, chemistry, physics. Some knowledge of statistics and educational psychology.

Recent investigations and research in science education, emphasizing critical reviews of published articles that pertain to the following: student misconceptions, problem solving, representation, concept learning, information processing models, and new teaching technologies.

CHM 510 three credits
Advanced Organic Chemistry
Prerequisites: CHM 252, 316

A study of mechanisms and stereochemical aspects of chemical reactions including considerations of chemical kinetics and reactivity in terms of modern bonding theory and structural concepts.

CHM 511 three credits
Biochemistry I
Prerequisites: CHM 251, 252, BIO 234 or equivalent recommended

A comprehensive study of biochemistry including amino acid and protein chemistry, enzymology, enzyme kinetics, bioenergetics, metabolism of carbohydrates, lipids, amino acids, nucleotides, biosynthesis of nucleic acids and proteins.

CHM 512 three credits
Biochemistry II
Prerequisite: CHM 511

A continuation of CHM 511.

CHM 520 three credits
Advanced Inorganic Chemistry
Prerequisites: CHM 316, 431

An advanced treatment of the structure and reactivity of inorganic materials. Major emphasis is on molecular orbital theory, the ligand field theory of transition metal complexes, and the kinetics and mechanisms of inorganic reactions.

CHM 521 three credits
Organic Mechanisms
Prerequisite: CHM 252
Prerequisite or corequisite: one semester of physical chemistry

The first part of the course provides a background in the various areas of physical organic chemistry such as thermodynamics, kinetics, acid-base theory, structure-reactivity relationships, and dipole moments. This is followed by a systematic study of reaction mechanisms.

CHM 522 three credits
Computer and Mathematical Methods in Physical Science
Prerequisites: Introduction to Computer Science; a working knowledge of FORTRAN 77

Mathematical techniques in physical science using computers. Includes matrices, linear algebra, introduction to computer graphics, curve-fitting, iterative solutions, numerical methods of integration and solution of differential equations, eigenvalue-eigenvector problems, molecular orbital calculations, trajectory calculations, spectrum simulation.

CHM 523 three credits
Thermodynamics
Prerequisites: CHM 315, 316

Development of the general thermodynamic theory from the first and second laws and application to homogeneous and heterogeneous reaction systems.

CHM 525 three credits
Theoretical Organic Chemistry
Prerequisites or corequisites: CHM 251, 252, 315, 316

Molecular orbital theory of organic molecules, applications of molecular orbital theory, reactivity, ESR, Carbon-13 NMR, photoelectron spectroscopy, orbital symmetry in electrocyclic reactions, cycloadditions, sigmatropic reactions.

CHM 526 three credits
Polymer Synthesis and Characterization
Prerequisites: CHM 252, 315; recommended, TEC 410

Laboratory synthesis of polymers and copolymers by different methods with an emphasis on the practical aspects of polymer synthesis. A discussion of various techniques of polymer characterization in terms of basic principles, experimental procedure, and interpretation of results. A selected number of experiments will be conducted on a class-project basis.

CHM 527 three credits
Electronic Structure of Atoms and Molecules
3 hours lecture
Prerequisites: CHM 315, 316

Fundamental quantum mechanical principles of electronic structure. Angular momentum, the hydrogen atom problem, helium ground and excited states, electron spin and antisymmetrization, many electron atoms, bonding theory, valence bond and molecular orbital theory, molecular orbital theory of diatomic and polyatomic molecules, applications of group theory to molecular orbital calculations, the self-consistent field method.

CHM 529 three credits
Physical Biochemistry
Prerequisites: CHM 315, 316, 411, 412

Application of physico-chemical principles to biochemistry. Discussion of the theoretical basis of such biochemical techniques as ultracentrifugation, electrophoresis, chromatography, and their application. Application of modern spectroscopic methods to biochemistry.

CHM 531 three credits
Chemical Kinetics
Prerequisites: CHM 315, 316

Principles and selected topics, including analysis of reaction rates, kinetic and transition state theories, reactions in gas and liquid phases, unimolecular reactions, fast reactions, enzyme kinetics and polymer kinetics.

CHM 533 three credits
Statistical Mechanics
Prerequisites: CHM 315, 316

Introduction to the principles and methods of statistical mechanics. Classical and quantum partition functions applied to the calculation of thermodynamic properties.

CHM 542 three credits
Quantum Chemistry
Prerequisites: CHM 315, 316

Fundamental concepts of quantum mechanics, wave properties, Schrodinger equation, operators. Basic application to free particles, harmonic oscillator, hydrogen atom. Perturbation theory and variation method. Applications to many-electron systems and time-dependent problems.

CHM 544 three credits
Applied Spectroscopy
Prerequisites: CHM 251, 252, 315, 316

A study of spectroscopic methods of determination of structure of organic compounds, especially infrared, ultraviolet, visible, nuclear magnetic resonance, and mass spectrometry, with extensive applications to individual cases.

CHM 550 three credits
Special Topics in Chemistry
Prerequisite: Permission of the instructor

An advanced treatment of special topics in chemistry with an emphasis on recent developments. The subject matter varies from year to year.

CHM 551 three credits
Electroanalytical Chemistry
Prerequisites: CHM 315, 316

The development of the fundamental mathematical relationships on which electrochemical methods are based. The interpretation of the kinetics of electrode reactions and the transfer of material to and from electrodes under various conditions. The interpretation of data of direct analytical significance generated by the methods and techniques of modern electrochemistry.

CHM 552 four credits
Instrumental Methods of Analysis
2 hours lecture, 3 hours laboratory
Prerequisites: CHM 315, 316, quantitative analysis

The theory and practice of modern analysis utilizing optical and electrochemical instrumentation in the solution of chemical problems. Topics discussed include ultraviolet, visible, and infrared spectrophotometry, fluorimetry, flame emission and atomic absorption spectroscopy, plasma emission spectroscopy, potentiometry utilizing ion specific electrodes, radiochemistry, thermoanalytical methods, volammetry including polarography amperometry and coulometry, liquid chromatography, electron spectroscopy, x-ray fluorescence analysis and neutron activation analysis.

CHM 553 three credits
Nuclear and Radiochemistry
Prerequisites: CHM 315, 316

Discussion of the theory and application of the decaying nucleus. Topics include natural and artificial radioactivity, preparation and decay properties of radioactive nuclides, interaction of radiation and matter, nuclear models, nuclear fusion, applications to chemistry.

CHM 554 three credits
Molecular Spectra and Molecular Structure
Prerequisites: CHM 315, 316

Basic principles of molecular spectroscopy, rotational, vibrational, and electronic spectral transition moments and selection rules. Use of spectra to find dissociation energies, force constants, inter-atomic distances, molecular symmetry and related quantities. Applications to real molecules in conjunction with other techniques for study of molecular structure.

CHM 555 three credits
Methods of Chemical Separation
Prerequisites: analytical and physical chemistry

A survey of modern separation methods. Topics include liquid, gas, thin layer and ion exchange chromatography, electrophoresis, sample preparation and extraction.

CHM 556 three credits
Magnetic Resonance Spectroscopy
Prerequisites: CHM 315, 316

Introduction to the theory of electron paramagnetic resonance and nuclear magnetic resonance; applications in the study of molecular structure.

CHM 560 three credits
New Synthetic Methods
Prerequisites: CHM 251, 252

Survey of preparative methods in organic chemistry and their application to the synthesis of complex molecules.

CHM 562 three credits
Natural Products
Prerequisites: CHM 251, 252

Isolation, structure elucidation, total synthesis, biogenesis, metabolism, and physiological importance of natural products.

CHM 600 three to nine credits per term
Thesis Research
Prerequisite: departmental permission

Original chemical research and preparation of thesis. Required for Plan A master's degree.

CHM 610 two to five credits per term
Project Research
Prerequisite: departmental permission

Original chemical research, required for Plan B master's degree. Written project report required.

CHM 620 two to five credits per term
Library Research
Prerequisite: departmental permission

Survey of a particular topic in the chemical literature. Written final summary report required.

Computer and Information Science

Students who major in computer science are given a strong background in computer hardware and software, as well as a substantial amount of "hands-on" experience. They are prepared to work both in computer industry and business as well as pursue graduate studies in the discipline. The undergraduate program is accredited by the Computer Science Accreditation Board. Both major and minor programs are offered.

A wide selection of courses offers experience in software engineering, computer languages, artificial intelligence, compilers, computer networks, operating systems, computer architecture, computer graphics, parallel computing, human computer interaction and data bases, as well as theoretical aspects. The courses are supported by a network of state-of-the-art workstations and various specialized laboratories.

The CIS department also offers a Master of Science Degree in Computer Science with broad range of required and elective courses in theoretical computer science, computer systems, software engineering, parallel and distributed computing, and computer networks.

Faculty and Fields of Interest

Jan Bergandy distributed systems, software engineering, theoretical computer science

John W. Gray digital systems design, computer architecture, software tools

Robert Green software engineering, parallel architectures

Adam O. Hausknecht symbolic manipulators, foundations of computer science

Lewis Kamm problem-solving with computers, program design and data structures

Hong Liu telecommunication network design, compilers and programming languages, computer graphics

Boleslaw Mikolajczak (chairperson) algorithms and complexity, parallel processing, computer architecture, theoretical computer science

Edmund B. Staples analysis of algorithms, mathematical applications, logical methods, and complexity theory

Richard Upchurch social implications, software engineering, human-computer interaction

Margery Zeller software development, computer-assisted instruction

Computer Science Major

BS degree

The Computer Science bachelor's degree program is accredited by the Computing Sciences Accreditation Board.

Requirements		Semester Credits	
First Year		**First**	**Second**
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
MTH 181, 182	Discrete Structure I, II	3	3
CIS 111	Computer Programming	3	
CIS 211	Introduction to Program Design		3
CIS 112	Freshman Seminar		1
	Humanities/Social Science	3	
		16	**14**
Second Year			
CIS 212	Introduction to File Processing	4	
CIS 214	Introduction to Computer Organization	4	
CIS 213	Introduction to Computer Systems		3
CIS 221	Automata and Formal Languages		3
PHY 113	Classical Physics I	4	
PHY 114	Classical Physics II		4
	Humanities/Social Science	3	3
	Free Elective		3
		15	**16**
Third Year			
CIS 314	Computer Architecture	4	
CIS 321	Analysis of Algorithms	3	
CIS 311	Software Engineering		4
CIS 313	Operating Systems		3
ENL 266	Technical Communications	3	
MTH 331	Probability	3	
	Humanities/Social Science		3
	Science Elective	3	
	Science/Quantitative Elective		3
	Literature Elective		3
		16	**16**
Fourth Year			
CIS 312	Programming Languages	3	
CIS 411	Seminar		3
	Technical Electives	3	3
	Humanities/Social Science	3	3
	Literature Elective	3	
	Free Electives	3	3
		15	**12**
	Total credits:		**120**

The requirements for completion of a Bachelor of Science degree in computer science are:

1.
Complete the following CIS core courses, each with a grade of "C" or better.

CIS 111
Computer Programming

CIS 112
Freshman Seminar

CIS 211
Introduction to Program Design and Data Structures

CIS 212
Introduction to File Processing

CIS 213
Introduction to Computer Systems

CIS 214
Introduction to Computer Organization

CIS 221
Automata and Formal Languages

CIS 311
Software Engineering

CIS 312
Programming Languages

CIS 313
Operating Systems

CIS 314
Computer Architecture

CIS 321
Analysis of Algorithms

CIS 411
Seminar

2.
Complete two additional courses from the following CIS electives, each with a grade of 'C' or better:

CIS 412
Foundations of Artificial Intelligence

CIS 421
Introduction to the Theory of Computing

CIS 422
Design of Parallel Algorithms

CIS 431
Human-Computer Interaction

CIS 443
Process-based Design

CIS 452
Database Systems

CIS 454
Computer Graphics

CIS 471
Compiler Design

CIS 475
Computer Networks

3.
Complete the following non-CIS required courses:

ENL 101
Critical Writing and Reading I

ENL 102
Critical Writing and Reading II

ENL 266
Technical Communications

MTH 111
Analytical Geometry and Calculus I

MTH 112
Analytical Geometry and Calculus II

MTH 181
Discrete Structures I

MTH 182
Discrete Structures II

MTH 331
Probability

PHY 113
Classical Physics I

PHY 114
Classical Physics II

SOC 381
Social Impact of Science and Technology

4.
Complete the humanities, social science, and literature requirements for the Bachelor of Science degree:

Students must take 18 hours from the humanities and social sciences, with a minimum or 6 hours from each area. The humanities encompass History, Philosophy, Art and Music (excluding applied courses), and Foreign Language. The social sciences encompass: Economics, Political Science, Psychology, and Sociology. Three of the hours must be met by SOC 381, as stated in item 3.

Students must take 6 hours of literature, which encompasses: English Literature, Literature in a Foreign Language, or Literature in Translation. The Departments of English and Foreign Literature and Languages shall specify which courses satisfy this requirement.

5.
Complete the science requirement for the Bachelor of Science degree:

Students must take 14 hours of science. Eight of the hours must be met by PHY 113 and PHY 114, as stated in item 3. Six hours must be science courses selected from the Biology, Chemistry, or Physics Departments.

6.
Complete 9 hours of free electives. It is recommended that students use these hours to broaden their education, complete a minor or major in another discipline, or take additional CIS or related electives consistent with their career interests.

7.
Complete the requirement for upper-division courses for the Bachelor of Science Degree: students must take at least 30 hours of courses numbered over 300.

Computer Science Minor

Students interested in a minor should contact the CIS department for an application and admission requirements. After admission to the program, a minimum of 21 credits must be earned as specified below.

Requirements
1.
Complete the following CIS/MTH courses with a grade of C or better:

MTH 181
Discrete Structures I

CIS 111
Computer Programming

CIS 211
Intro to Program Design and
Data Structures

2.
Complete 4 computer science courses selected from the 12 core courses or technical electives with a grade of C or better. At least 3 courses must be of 300 or higher levels. At least one of these courses must be selected from the group of technical electives.

CIS 111 three credits
Computer Programming

Algorithm development, syntax and semantics of a high level programming language, debugging and verification of programs. Concepts of structured programming. Arrays, subroutines. Elementary system concepts (compilation, time-sharing).

CIS 112 one credit
Freshman Seminar
Prerequisite: Freshman standing

Structure of Computer Science as a discipline. Introduction to computer systems organization.

CIS 161 three credits
Computer Programming BASIC

An elementary programming course designed for the student with no prior experience in data processing. Programming Language: BASIC.

CIS 201 three credits
Computer Literacy

An introduction to computers, the history of computers, and the social, political, and philosophical impact of computers in society. Numerous computer systems (including personal computers) and computer applications will be studied. This is a non-technical course that is designed to provide the non-science, non-technical student with a background knowledge of what computers are, what they do, and what their impact is on society.

CIS 211 three credits
Introduction to Program Design and Data Structures
Prerequisite: CIS 111

Data structures such as stack, queue, list, tree, table. Concept of abstract data type, user-defined data types. Recursion and correspondence of recursive and nonrecursive algorithms. Large program organization (modularity, interface specification, program documentation). Program testing and performance evaluation.

CIS 212 four credits
Introduction to File Processing
Prerequisites: CIS 211

General files concepts. Sequential file processing, physical I/O vs. logical I/O, sort/merge, master file update. Random file processing, random master file update. Indexed file processing, index structures, single index files (ISAM) and multi-key files (VSAM).

CIS 213 three credits
Introduction to Computer Systems
Prerequisites: CIS 211, 214

Computer structure and machine language. Data representation, instruction cycle, addressing techniques. Assembly language: basic concepts, subroutines, parameters; assembly process and error messages. Fundamental functions of operating systems; linking, relocation, and I/O processing. Concept of concurrent processing (process communication, control switching, deadlocks).

CIS 214 four credits
Introduction to Computer Organization
Prerequisites: MTH 181, CIS 111

Basic digital circuits, data representation and transfer, register transfer logic, memory organization and design. Finite state machine as a control implementation. Distributed control; microprogramming. Methods of analysis and synthesis of digital systems. Problem of interfacing. I/O organization.

CIS 221 three credits
Automata and Formal Languages
Prerequisites: MTH 182, CIS 211, 214

Discussion of classes formal languages such as regular, context-free, and recursively enumerable; and the associated abstract machines: finite automata, pushdown automata, and Turing machines. Examples of applications of these concepts, such as arithmetic evaluation, stack mechanisms for procedure calls and PLA's; the historical influence of the Universal Turing Machine.

CIS 260 one credit
Fortran
Prerequisite: CIS 111

Designed to teach problem-solving using the language Fortran. It assumes a knowledge of PASCAL.

CIS 261 three credits
Computer Programming-Fortran
3 hours lecture
Corequisite: MTH 101, 105, or 111

A course designed to give the student familiarity with digital computer methods and programming with emphasis on Fortran.

CIS 265 three credits
Program Design and Data Structures with C
Prerequisite: Any CIS Programming Course

An intensive course in the "C" programming language, and an introduction to UNIX and C++ for students who are already proficient in another high-level programming language such as BASIC, FORTRAN, or PASCAL (preferred). The course, however, will be logically self-contained.

CIS 311 four credits
Software Engineering
Prerequisite: CIS 211

Development of large software systems. Requirements specification, design, implementation, and testing methodologies. Security and privacy of software. Software life-cycle with emphasis on control through documentation and review. Programming support environments. Organizational structures, project management and planning.

CIS 312 three credits
Programming Languages
Prerequisites: CIS 213, 221

Global properties of programming languages such as binding time of constituents, scope of declaration, subroutines, coroutines, storage allocation. Run-time representation of program and data structures. Implementation of a high level language. Overview of translation and interpretation oriented languages.

CIS 313 three credits
Operating Systems
Prerequisite: CIS 314

Operating system organization and design of system modules. Command interpreters; system calls. Resource management: file systems, memory management, CPU scheduling, disk-drum scheduling, deadlock handling; protection.

CIS 314 four credits
Computer Architecture
Prerequisite: CIS 213

General organization of a computer system. Memory hierarchy. Emphasis on memory organization and management implementation. Local and long distance communication, bus, input-output organization and control. Programmed I/O and I/O processors. Interrupt handling. Processor organization; instruction set; arithmetic-logic unit; parallel and stack processors. Programmed and hardwired, central and distributed control.

CIS 321 three credits
Analysis of Algorithms
Prerequisites: CIS 212, 221

An analysis of the complexity of some of the fundamental algorithms in computer science. It introduces the concept of big O notation in the evaluation of algorithmic complexity in such areas as searching, sorting, graphs and arithmetic and algebraic algorithms. It also introduces advanced topics such as dynamic programming, heuristics algorithms, backtracking and NP-completeness.

CIS 411 three credits
Seminar
Prerequisite: Senior CIS standing

Advanced topics in Computer Science.

CIS 412 three credits
Foundations of Artificial Intelligence
Prerequisite: CIS 321 or permission of instructor

Artificial intelligence problem-solving paradigms. Heuristic versus algorithmic methods, rational and heuristic approaches, description of cognitive processes. Objectives of work in artificial intelligence, mid-brain problem and nature of intelligence, simulation of cognitive behavior and self-organizing systems. Examples of representative applications.

CIS 421 three credits
Introduction to the Theory of Computing
3 hours lecture
Prerequisite: CIS 321

Several of the most significant models of computation will be reviewed, i.e., Turing machines, 1-calculus, predicate calculus. The traditional undecidibility results will be covered, along with the attempts to overcome the resulting limitations in restricted situations. Mechanical theorem provers will be considered. The resolution and unification predicate calculus methods will be discussed along with appropriate PROLOG programming assignments. The Boyer-Moore approach will be discussed, along with LISP programming assignments.

CIS 422 four credits
Design of Parallel Algorithms
3 hours lecture, 1 hour laboratory
Prerequisites: CIS 314, 321, or permission of instructor

Design and analysis of algorithms for parallel computers with two modes of operation: shared memory, and message passing. Synchronous and asynchronous parallel algorithms for the following problems will be designed and implemented: selection, merging, sorting, searching, generating permutations and combinations, and matrix operations. Parallel computational complexity of these algorithms will be analyzed.

CIS 431 four credits
Human-Computer Interaction
3 hours lecture, 3 hours laboratory
Prerequisites: CIS 311 or permission of instructor

Theory and principles for constructing usable software systems. Cognitive and effective aspects of users. The impact of user characteristics on design decisions. The construction and evaluation of the user interface. Sensory and perceptual aspects of interfaces, task structure, input modalities, screen layout, and user documentation. Individual concerns for systems such as personal productivity tools, real-time control systems, instructional software, and games.

CIS 443 three credits
Process-Based Design
Prerequisite: CIS 314, 311, or permission of instructor

Design of systems composed of multiple, communicating processes (tasks), including distributed systems and real-time systems. Programming with ADA.

CIS 452 three credits
Database Systems
Prerequisite: CIS 212

Use of DBMS software in the development of an information system. Overview of the ANSI/SPARC Study Group on Database Management Systems model. Relational database model techniques. Emphasis on user views necessary to support data management and retrieval.

CIS 454 three credits
Computer Graphics
Prerequisites: Junior CIS standing and MTH 211 or consent of instructor

Graphics devices. Two dimensional and three dimensional image representations and transformations. Graphics systems software architecture; graphics standards; packages.

CIS 471 three credits
Compiler Design
Prerequisite: CIS 312

Organization of a compiler including lexical and syntax analysis, symbol tables, object code generation, error detection and recovery, code optimization techniques, and overall design. Compilation techniques and run-time structures in block-structured language.

CIS 475 three credits
Computer Networks
Prerequisites: CIS 313, 314

Topology of computer networks. Physical transmission. Error handling. Protocols. Satellite, packet radio, and local networks. Network interconnection. Security. Applications of computer networks.

CIS 491, 492 three credits each
Honors Project I, II
Prerequisites: Junior standing, eligible for department honors program

The project courses required for completion of the departmental honors program. A significant experience in developing a computer system (typically), but equivalent alternatives are allowed. This system should require an extensive design effort prior to implementation and a serious effort for this implementation. It should have scholarly and or practical value and might well profit by being interdisciplinary in nature.

CIS 495
Independent Study

CIS 496
Directed Study

CIS 900
Contract Learning

Graduate Courses in Computer and Information Science

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

CIS 521 three credits
Computability Theory
Prerequisite: CIS 421 or equivalent

Computability of sets and functions in terms of various computation models, Church-Turing thesis. Systems of recursion equations, Post canonical systems. Properties of the classes of recursive functions, recursive sets and recursively enumerable sets.

CIS 522 three credits
Algorithms and Complexity
Prerequisite: CIS 321 or equivalent

Evaluation of algorithms concerning their time and space complexity. Complexity hierarchies, axiomatic approach to computational complexity, NP complete problems and approximation algorithms for these problems.

CIS 525 three credits
Topics on Parallel Computations

Parallel versus distributed architecture. Applicative and functional computations and the corresponding architectures; reduction machines and dataflow machines, static and dynamic data flow models, the Manchester Dataflow Machine, Petri-Nets.

CIS 526 three credits
Functional Programming and Type Theory
Prerequisite: Graduate standing or permission of instructor

A brief introduction to logic, type theory, and the lambda calculus, including a brief review of LISP as a first application of these ideas. An overview will be given of consistency proofs using cut elimination and type theory. The use of constructive type theory in functional programming languages in attempts to achieve program verification and automatic code generation will be studied.

CIS 531 three credits
Software System Development
Prerequisite: CIS 311 or equivalent

Formal foundation for the theory and practice of software specification; production of correct, consistent, and reliable software systems through expressing the requirements of the system in formal ways. Formal and informal requirements analysis and specification techniques, the relation of analysis and specification to the concerns of validation and verification, maintenance, and reusability.

CIS 532 three credits
Software System Design
Prerequisite: CIS 311 or equivalent

Principles and techniques for obtaining an architectural design from a system specification. Where appropriate, automated software design tools are used to demonstrate particular methodology. The relation of various design methods to the production of quality software that meets its specification, and the relation of design method to other life-cycle aspects. Design methods, design tools, the design process, and particular application domains for design techniques.

CIS 543 three credits
Ada Programming

Methodology of concurrent programming, Ada language design and implementation. Multi-task programming. Programming support environment, detection of concurrency errors, verification and validation methods.

CIS 545 three credits
Programming Languages
Prerequisite: CIS 312 or permission of instructor

Techniques of formal definition of programming languages, semantics of programming languages, programming styles, and language affects on software production. Introduction to the current trends in programming such as language features of problem-oriented and object-oriented programming, and analysis and design of user-oriented application languages.

CIS 552 three credits
Database Design
Prerequisite: CIS 212 or equivalent

The relational, hierarchical and network approaches to data base systems. Relational algebra and calculus, data dependencies, normal forms, data semantics, query optimization. Security, integrity, concurrent operation on the database; query optimization and concurrency control on distributed database systems.

CIS 561 three credits
Artificial Intelligence

Expert system architectures: forward-production, logic programming, deductive retrieval, and semantic network systems. Introduction to natural language systems. Study and enhancement of illustrative working systems; AI programming.

CIS 566 three credits
Theory of Linear and Integer Programming and Computer Applications
Prerequisite: Graduate standing or permission of instructor

Basics of the simplex algorithm, tableaux, artificial variables, the two phase method, the dual problem and its economic interpretation, primal-dual relationships and method. Applications to transportation problems and network flows will also be studied. The polynomial methods of Khachiyan and Karmarkar, integer programming and computer methods and exercises will be discussed and employed throughout.

CIS 571 three credits
Compiler Construction
Prerequisite: CIS 221 or equivalent

Emphasis on advanced code generation and optimization techniques. Compiler models. The course will include a significant project.

CIS 572 three credits
Real Time Systems
Prerequisite: CIS 313

Hardware and software characteristics of real time systems. Allocation of resources, event scheduling (synchronous and asynchronous), static and dynamic priorities, measurement of performance (especially scheduling and response accuracy).

CIS 573 three credits
Operating Systems
Prerequisite: CIS 313 or equivalent

The methodologies of operating systems design and implementation. Concurrency, synchronization, process communication, switching control, deadlocks, implementation of dynamic structures, design of operating systems modules and interfaces, system security and integrity, system updating and documentation.

CIS 574 three credits
Advanced Computer Architectures
Prerequisite: CIS 314 or equivalent

Study of recent advances in computer organization. Parallel processors, pipelined processors, modular and network architectures, micro-programmed processors, data-flow machines, fault-tolerant systems, language-directed, object-based, capability-based, and message-based processor organizations.

CIS 575 three credits
Parallel Algorithms and Parallel Architectures
Prerequisites: Graduate standing in CIS or senior standing in CIS and permission of instructor

Advanced topics in the area of parallel algorithms and their implementations in current parallel architectures. The first part of the course analyzes several parallel algorithms for problems in graph theory, algebra, FFT, and artificial intelligence. Computational complexity of these parallel algorithms is also studied. The second part presents implementations of these algorithms in various parallel architectures such as SIMD, MIMD computers, and modern VLSI structures.

CIS 577 three credits
Computer Networks
Prerequisites: CIS 475 and knowledge of probability and linear programming or permission of instructor

Analysis and modeling of centralized and distributed computer networks also studied are queueing network analysis, principles of network design, and software considerations and design on computer networks.

CIS 578 three credits
Evaluation of Computer Systems Performance
Prerequisite: MTH 331

Techniques of analysis and simulation for evaluation of computer systems performance. Queueing systems. Poisson processes, scheduling, service distribution, conservation laws. Queueing networks. Discrete simulations.

CIS 601, 602, 603 three credits
Special Topics in Computer Systems

Offered as needed to present advanced material to graduate students.

CIS 611 one credit
Seminar—Master's Thesis/Research Project

Several research areas in Computer Science will be investigated. Selection of topics will be based on the research interests of the participating students.

CIS 612 five credits
Master's Thesis

CIS 613 five credits
Research Project

Economics

A major in Economics provides students with a unique blend of the perspective gained from a liberal arts education and the practical skills necessary for intelligent decision-making and administration in business and government. In addition to providing a sound theoretical foundation in economic theory and economic statistics, the economics major introduces students to a variety of applied fields which focus on international, national, and regional economic problems, issues, and policies. Class sizes in major courses are relatively small, and there is much opportunity for direct contact and interaction with faculty.

Graduates of the program find employment with banks, insurance companies, public utilities, corporations, the federal government, and economic planning and forecasting groups. Economics is a preferred major for entrance into graduate schools of business (MBA programs) and is an ideal background for law school (JD degree) and/or a career in public policy. A major in economics provides strong preparation for teaching social studies and may be combined with a minor in education for certification in teaching.

Faculty and Fields of Interest

David E. Berger labor economics, regional economics

Frances F. Esposito industrial organization and antitrust policy, micro theory, econometrics

Daniel L. Georgianna comparative economic systems, resource economics, history of economic thought

William V. Hogan (chairperson) economic statistics, econometrics, economic history, demography

John Ohly international economics, monetary economics

Ronald Shadbegian public economics, state and local finance, applied economics

Sonia Walgreen economic development, urban economics

Economics Major
BA Degree

Students who wish to pursue a professional career in economics should plan to attend graduate school. For admission to graduate programs in Economics students should follow the curriculum of the honors major in economics and should take as many courses in mathematics as possible. Prospective Economics graduate students should take at least the following math courses: MTH 111, 112, 211, 212, 221. Courses MTH 311, 312, 331, and MTH 332 are also recommended.

Of the total requirement of 120 credits, 30 must be at the 300-400 level.

There can be deviation from the typical program shown here, and with transfer students there often is.

Requirements		Semester Credits	
First Year		**First**	**Second**
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Mathematics*	3	3
ECO 231, 232	Economics I, II	3	3
	Science Elective	3	
	Foreign Language Requirement		3
	Humanities/Social Science Electives	3	3
		15	**15**
Second Year			
MTH 231, 232	Elementary Statistics I, II	3	3
	Foreign Language Requirements	3	3
	Science Elective		3
ECO	Economics Elective at the 300-level**	3	
	Humanities/Social Science Electives	3	3
	English Literature Electives	3	3
		15	**15**
Third Year			
ECO 301	Price Theory and Public Policy	3	
ECO 311	Employment and Income Theory		3
	Humanities/Social Science Electives	3	3
ECO	Economics Electives at the 300-400 level***	6	3
	Science Elective		3
	Free Electives	3	3
		15	**15**
Fourth Year			
ECO	Economics Elective at the 300-400 level***	6	3
	Humanities/Social Science Elective		3
ACT 211	Principles of Accounting I	3	
	Free Electives	6	9
		15	**15**
		Total credits:	**120**

*Two semesters from the following list of mathematics courses are required. Any of the following sequences of courses will satisfy this math requirement: MTH 101, 102; MTH 103, 102; MTH 105, 106; MTH 111, 112. It is strongly recommended that students complete this math requirement in their first year of study.

**Student may select an ECO 300-level course if he/she meets the requirements.

***At least 6 credits must be taken at the 400-level anytime after completing ECO 231 and 232.

Honors Major in Economics

Requirements for the Honors major are the same as for the regular major in economics except that students must include ECO 306 Mathematical Economics; ECO 333 Econometrics; and ECO 416 History of Economic Thought among their courses at the 300 or 400 level and must achieve at least a grade point average of 3.2 in all courses in Economics at the time of graduation.

Economics Minor

A minor in economics may be elected by a student majoring in any other field. Any degree candidate who has between 54 and 84 credits, with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his or her major, may request admission to the minor. Before being admitted to the economics minor, student must obtain approval of the Economics Department chairperson. Students accepted in the minor must complete six upper division courses after being admitted to the minor program.

Eighteen credit hours are required and must include the following courses: ECO 231, 232, and either 301 or 311 (9 credits). The remaining credits to total 18 must be selected from courses in economics numbered ECO 300 or higher. Independent study, directed study, or contract learning may not be applied toward the minor. Students must have, at the time of graduation, an average of at least 2.5 in all courses taken in economics to qualify for the minor.

Policy on Contract Learning
The Economics Department does not encourage students to participate in Contract Learning and imposes special conditions for the acceptance of contracts.

ECO 103 three credits
Cities, Minorities and Poverty

Review and analysis of major social problems faced by cities; emphasis on origin, causes and possible solutions for poverty and minority problems. Freshman elective.

ECO 105 three credits
Economic Development

The meaning of economic development. The interaction of economic, social and cultural forces in development. Widely different time periods will be considered. Freshman elective.

ECO 111 three credits
Jobs and Discrimination

Basic analysis of problems of economic growth, job creation, and unemployment; structure of work and jobs will be explored, along with current issues surrounding the government's impact on inflation, taxation, and economic planning. Freshman elective.

ECO 231 three credits
Economics I

Principles of microeconomics. Survey of the American economy focusing on markets, the price system, and resource allocation. Price determination in markets ranging from pure competition to monopoly. Applications in agricultural economics, legal prices, excise taxes, labor market issues, advertising, technological change, pollution and the environment, public goods, antitrust policy, international trade, and alternative economic systems.

ECO 232 three credits
Economics II
Prerequisite: ECO 231 or permission of instructor

Principles of macroeconomics. National income accounting, inflation, unemployment, and fiscal policy. Money, the banking system, and monetary policy are covered. Balance of payments and currency exchange rate issues are analyzed.

ECO 301 three credits
Price Theory and Policy
Prerequisites: ECO 231, 232

The theory of price determination, resource allocation and income distribution is integrated with consideration of public policy questions.

ECO 306 three credits
Mathematical Economics
Prerequisites: ECO 231, 232, MTH 111, 112; or permission of instructor

Mathematical treatment of economic theory. Topics in microeconomics, macroeconomics, general equilibrium, and welfare economics will be considered. Methods of optimization subject to constraints will be developed.

ECO 311 three credits
Employment and Income Theory
Prerequisites: ECO 231, 232

A one-semester course in contemporary intermediate macro theory. Develops and contrasts the New Classical (equilibrium) and Neo-Keynesian (disequilibrium) models in the aggregate demand/ aggregate supply framework for both closed and open economies. Policy implications of each model are discussed. Surveys national income and product accounts and other macroeconomic data.

ECO 321 three credits
Comparative Economic Systems
Prerequisites: ECO 231, 232

Comparisons in terms of structure and performance between capitalist economies, centrally-planned socialist economies, decentralized or market socialist economies, and mixed economies. The case study method is used, concentrating on four to six countries. Major emphasis is on the economy of the USSR.

ECO 322 three credits
European Economic History
Prerequisites: ECO 231, 232

A course in applied economic theory. Micro and Macro economic theories are used to "explain" or account for various historical events. The course surveys the economic development of Britain and the European continent with emphasis on the Industrial Revolution, the 19th century, and the 20th century to WW II.

ECO 323 three credits
American Economic History
Prerequisites: ECO 231, 232

A course in applied economic theory. Micro and Macro economic theories are used to "explain" or account for various historical events. The course surveys the economic development of the American economy through the 19th and 20th centuries to WW II.

ECO 331 three credits
Economics of Developing Countries
Prerequisites: ECO 231, 232

A study of economic development in Third World nations. Emphasis is on the analysis of critical development problems from a combined theoretical, empirical, and policy-oriented perspective. The course will also explore the historical, political, social, and economic roots of underdevelopment and the future of the world economy in an age of increasing interdependence.

ECO 333 three credits
Econometrics
Prerequisites: ECO 231, 232 and ECO 280; or permission of instructor

Introduction to econometrics including development of basic techniques of bivariate and multivariate linear regression analysis; use of lagged variable and dummy variables in model building; problems of multicollinearity, autocorrelation and heteroscedasticity.

ECO 337 three credits
Environmental Economics
Prerequisite: ECO 231

This course will study the fascinating and growing field of environmental and natural resource economics. All the topics covered (e.g., property rights and externalities, regulation and pollution control) will be examined as part of the general focus on the problem of economic growth in the presence of limited environmental and natural resources. We will employ the tools from 'basic' microeconomic theory to study the relationship between the economy and the natural environment.

ECO 342 three credits
Labor Economics
Prerequisites: ECO 231, 232

The labor force. Wages in competitive and non-competitive markets. Wage structures. Inequalities and discrimination. Impacts of unions and social standards. Indexation, inflation and unemployment.

ECO 343 three credits
The Economics of Sex and Race Discrimination
Prerequisites: ECO 231, 232; or permission of instructor

The theory of labor markets and the problem of discrimination. Current problems facing women and minorities will be examined. Existing programs and trends will be explored.

ECO 355 three credits
Antitrust Law and Economics
Prerequisite: ECO 231

The main antitrust laws and the rich variety of court decisions that have influenced decades of economic activity. The arguments of the plaintiffs and prosecution are discussed and evaluated as well as the majority and minority opinions of the Court. Economic analysis is employed to view the economic motives of the firms involved. Students learn about monopolization cases from the famous ALCOA case (1945) to the 1982 AT&T case. Precedent-setting cases involving "price fixing," exchange of price information, exclusive dealing, tying contracts, price discrimination and mergers are analyzed.

ECO 362 three credits
Monetary Theory and Policy
Prerequisites: ECO 231, 232

Structure of the American monetary and banking system. Monetary theory is developed and monetary policies are considered.

ECO 366 three credits
Economics of Aging
Prerequisites: ECO 231, 232, or permission of instructor

Economic issues associated with "growing older" as well as issues and policies related to "being older"; including the economic status of the elderly, economic implications of paid work or retirement, the economic impact of social security, health care needs, and costs.

ECO 371 three credits
International Trade
Prerequisites: ECO 231, 232

Examination of international trade theory and policy. The course develops the theoretical framework for analyzing the potential gains from, direction of, and distributional effects of international trade as well as the potential impacts of tariffs and other policies affecting trade. Among other topics, the course will examine free trade versus protectionism, governmental promotion of competitiveness and the growing importance of trading blocs.

ECO 372 three credits
International Finance
Prerequisites: ECO 231, 232

Examination of international monetary theory and policy. The course develops the basic analytical tools for analyzing monetary relations among nations. The causes and effects of foreign exchange rate changes are explored. Macroeconomic interdependence among nations and its implications for policy are examined. The pros and cons of alternative international monetary systems are compared.

ECO 401 three credits
Industrial Organization and Antitrust Policy
Prerequisite: ECO 301 or permission of instructor

Development of antitrust policy in the U.S. Discussion of tying arrangements, vertical integration, price discrimination, market structure and technological innovation, diversification, mergers, and patents. Theoretical and empirical discussion of barriers to new competition in American industries.

ECO 402 three credits
Economics of Regulation
Prerequisite: ECO 231

The impact of state and federal government economic and social regulation on industrial economics. Topics include economic regulation of the financial sector and natural monopoly situations (electric power, natural gas, and local telephone service); common resource problems—broadcasting; social regulation of health, safety, and the environment; and deregulation of transportation industries.

ECO 416 three credits
History of Economic Thought
Prerequisites: ECO 231, 232

The development of economic thought with emphasis on the period beginning with Adam Smith and ending with J.M. Keynes. Methodological issues in economics are also considered, and questions concerning the current status and the future directions of the profession are addressed.

ECO 417 three credits
Economics and Population Analysis

The measurement and behavior of the major demographic variables, fertility, mortality, and migration, and their role in determining the growth and age distributions of populations. Applications include historical demography, the relation of population growth to economic development, urban concentration and crowding, environmental deterioration, the aging of populations, and zero population growth. Population policy and prospects for both the near future and the longer run are also considered. Upperclass elective. Prerequisites: ECO 231, 232 or consent of instructor. This is a multidisciplinary course, and students at the junior or senior level in majors other than economics are encouraged to consider the course even though they may not have taken ECO 231 and ECO 232.

ECO 441 three credits
Public Economics I
Prerequisites: ECO 231, 232, 301, or permission of instructor

First of a two semester inquiry into the role of government in a market economy. Topics include economic efficiency and the public interest, rationale for government intervention in the private sector and an economic model of the democratic process.

ECO 442 three credits
Public Economics II
Prerequisites: ECO 231, 232, 301, 441, or permission of instructor.

Concerns itself with the economic and behavioral effects of government's spending tax policies. Topics include the effect of tax policy on private investment, saving and labor supply, as well as other issues related to the effects of different government economic policies.

ECO 443 three credits
State and Local Public Economics
Prerequisites: ECO 231 and upper-class standing

State and local public economics explores the major economic decisions of subnational governments—taxation and expenditures—and how these decisions affect the allocation of private resources. Specifically, the course focuses on the constraints imposed on state and local governments that are not placed on the federal government.

ECO 452 (LST 452) three credits
Manpower and Regional Development
Prerequisites: ECO 231, 232, or permission of instructor

Review of labor market problems and programs in growing and depressed regions, with special emphasis on New England. Attention focused on the impact of education, training and government manpower programs.

ECO 453 three credits
Work, Jobs, and Income
Prerequisites: ECO 231, 232, or permission of instructor

Study of changes in the labor force, the impact of labor market processes and how they effect work motivation, job performance and income distribution.

ECO 472 three credits
Coastal Resource Economics
Prerequisites: ECO 231, 232, or permission of instructor

An examination of the economic, public policy and regulatory issues affecting coastal zone resources. The focus will be on specific case studies with an emphasis on examining policy and environmental issues. Students will be involved in projects on specific cases.

ECO 492
Senior Seminar
Prerequisites: ECO 231, 232, and a 300-400 level Economics course. Permission of instructor required if prerequisites are not met.

In-depth coverage of an economic topic of contemporary interest; research paper required.

ECO 495
Independent Study

ECO 496
Directed Study

ECO 900
Contract Learning

Education

By means of course work, field experiences, and close student-faculty cooperation, the Education Department encourages students to become dedicated, innovative teachers and to understand and appreciate the problems and potential of the American educational system, and also to become more effective citizens in our society.

The Education Department believes that good teachers are essential role models for children in the ongoing development of a dynamic democratic society. For this reason, the department encourages its students to become proficient in various important teaching technologies and to become as open and self-actualizing as their personalities allow. In keeping with these aims, the faculty attempts to share and develop with students an enthusiastic interest in educational research and its findings while also demonstrating in action the importance the department places on the democratic process, scientific methods, cooperative interpersonal relationships, and aesthetic values. The department's philosophy is really a matrix of goals which are seldom perfectly achieved in human experience. In recognition of this fact, and in keeping with the meaning of the goals themselves, the department encourages a continuous evaluation of its work by students and faculty members.

Faculty and Fields of Interest

George Collison mathematics and science education, curriculum development, educational computing, multimedia in the classroom, critical thinking, educational reform

Armand Desmarais administration/supervision, secondary education, methods and materials in business education, teaching strategies curriculum development, teacher preparation, school reform

Patrick Joseph Foley (chairperson) philosophical, historical, and social foundations of education

Janet Freedman adult education, instructional development, educational administration, teacher preparation, women's studies, library/media resources, innovation and reform

Cynthia Kruger secondary education, curriculum development (K-12); bilingual education, methodology, social studies, reading, teacher preparation

William J. Rotondi counseling and psychotherapy, individual and group

Lawrence D. Singleton tests and measurements, educational research, evaluative research

Barbara Steele curriculum development (K-12, elementary and middle school), language arts and reading; process writing, whole language, integrated learning, social studies, teacher preparation, qualitative research, field studies, and in-service programs

Elementary and Secondary Education Certificate Programs

Students who elect the complete program become eligible for teacher certification in the Commonwealth of Massachusetts and in most other states. Education certificate candidates at UMass Dartmouth will also pursue an academic major in another department of the university (or will already possess one).

At the elementary level, focus is upon the student's gaining a general liberal education as well as an understanding of the role of the elementary school in American education, and upon practicing specific methods of elementary school teaching and classroom management. The course work reflects traditional as well as contemporary values in elementary school methodology.

At the secondary level, focus is upon the student's mastering an academic discipline and also achieving a solid intellectual foundation in professional education through theoretical and practical "hands-on" course work.

As of October 1, 1994, the state of Massachusetts changed to a two-tier system of certifying its teachers. In this new structure, which applies first to the entering freshman class of 1991, provisional certification (Tier 1) will be granted upon the completion of a liberal arts undergraduate degree, an undergraduate program of education courses, and student teaching. Full certification (Tier 2) will be granted upon the completion of a clinical master's degree which should be taken during the candidate's full employment as a novice teacher. The undergraduate tier of this program, "Tier 1," is given below. UMass Dartmouth has submitted for approval a proposal for the "Tier 2" master's curriculum.

Elementary and Secondary Education Certificate Programs
continued

Currently, the following certification programs are offered for provisional certification, with grade-levels indicated:

Elementary Education Teacher (1-6)
Teacher of Business (5-12)
Teacher of Biology (5-9; 9-12)
Teacher of Chemistry (5-9; 9-12)
Teacher of English (5-9; 9-12)
Teacher of French (5-9; 9-12)
Teacher of History (5-9; 9-12)
Teacher of Mathematics (5-9; 9-12)
Teacher of Physics (5-9; 9-12)
Teacher of Portuguese (5-9; 9-12)
Teacher of Social Studies (5-9; 9-12)
Teacher of Spanish (5-9; 9-12).

Qualifications for admission to the provisional certification program are as follows:

- An interview with the Director of Teacher Certification

- Formal acceptance into a UMass Dartmouth degree program or possession of an appropriate B.A. or B.S. degree

- A cumulative grade point average of 2.7. (A GPA of 2.5 will qualify for probationary status, and the Department of Education will consider students with less than a 2.5 GPA if there are bona fide extenuating circumstances. A formal appeal process has been instituted for this purpose.)

- A sincere interest in becoming a teacher.

In order to be eligible for student teaching, students must have a cumulative grade point average of 2.7 and have successfully completed all required Education courses. The Department of Education may approve students with less than a 2.7 GPA for student teaching if there are bona fide extenuating circumstances. A formal appeal process has been instituted for this purpose.

All Teacher Certification students must achieve a minimum performance level in each elementary, middle, or secondary methods course in order to progress to the next course in the sequence, as determined by explicit standards of assessment set by the instructor. A student may progress to the next course only after receiving at least a B-grade in the previous level methods course.

Elementary Education Certification

Tier 1 requirements for provisional certification		Field-based Experience	Credits
Sophomore Year			
EDU 205 PSY 201	Human Development and Learning **OR** Child Psychology		3
AED 460	Art for the Elementary Classroom		3
MUS 101 MUS 316	Introduction to Music **OR** Teaching Children Music (K-9)		3
	A course in non-Western civilization*		3
	A mathematics course		3
	A science course		3
EDU 206	Teaching as Profession—Elementary	30 hours pre-practicum	3
Junior Year			
EDU 303	Elementary Curriculum Methods (Math and Science)	15 hours pre-practicum	3
EDU 304	Elementary Curriculum Methods (Language Arts and Social Studies)	25 hours pre-practicum	4
EDU 420	Reading in the Elementary School	15 hours pre-practicum	3
Senior Year			
EDU 414	Elementary Practicum	400 hours supervised student teaching	12
EDU 416	Elementary Workshop		3
		Total	**46**

*A three credit course in African, Asian, Latin American, or Russian History, which may carry a History or Sociology/Anthropology prefix.

Middle/Secondary School Education Certificate

Tier 1 requirements for provisional certification		Field-based Experience	Credits
Sophomore Year			
EDU 207	Teaching as Profession—Middle and Secondary	45 hours pre-practicum	3
PSY 215	Adolescent Psychology		3
	A course in non-Western civilization*		3
Junior Year			
EDU 326	Contemporary Middle and High School Education	15 hours of pre-practicum	3
EDU 327	Classroom Instruction in the Middle and Secondary School	15 hours of pre-practicum	3
	Discipline Methods Course**		3
Senior Year			
EDU 415	Middle/Secondary Practicum	400 hours of supervised student teaching	12
EDU 417	Middle/Secondary Workshop		3
		Total	**33**

Please note that EDU 315 Reading Improvement in Middle and High School is strongly recommended in addition to the requirements for middle and secondary certification.

*A three credit course in African, Asian, Latin American, or Russian History, which may carry a History or Sociology/Anthropology prefix.

**Each certification area has its own methods course.
Please see department course listings.

EDU 200 three credits
Early Field Experience in the Secondary School

Early Field Experience provides an opportunity for students to explore career interests through a secondary school practicum and to confirm interests in specific grade levels and subject areas. The course will be taken during the sophomore year and will be mandatory for initial acceptance into the full-fledged internship program.

EDU 201 three credits
Philosophy of Education

An introduction to major issues and problems in philosophy of education. Examination of some of the traditional areas of philosophical concern, and their relevance to the teacher-learning process is undertaken.

EDU 205 three credits
Human Development and Learning

A study of central development tendencies and stages as these underlie the unfolding of human potentialities. Consideration will be given to those conditions and factors which influence learning and forgetting. The nature of intelligence, the nature of learning, and the meaning of personality will be examined in the context of the teacher-learning process. This course meets the Massachusetts Office for Children requirements for day care center certification, OFC Category A, Child Growth and Development.

EDU 206 three credits
Teaching as a Profession: Elementary

Introduction of potential teachers to the real world of teaching through an in-depth, candid analysis of the teaching profession today. This course will explore the challenges and rewards of teaching; study the history, philosophy, sociology, and politics of American education; and focus on the major educational issues, trends, and reform of the 1990s. Current educational thought and research will be analyzed. Students are expected to complete a 20 hour pre-practicum in a local elementary school.

EDU 207 three credits
Teaching as a Profession: Middle and Secondary

Introduction of potential teachers to the world of teaching through an in-depth, candid analysis of the teaching profession today. This course will explore the challenges and rewards of teaching; study the history, philosophy, sociology, and politics of American education; and focus on the major educational issues, trends, and reform of the 1990s. Current educational thought and research will be analyzed. Students are expected to complete a 60 hour pre-practicum in a local school.

EDU 220 three credits
Interpersonal Communications

Effective communication through a process of human interaction. Students in this course study the nature of that interaction, in theory and experientially, through examination of the parts of the process: person, message, environment, and relationship.

EDU 303 three credits
Elementary Curriculum Methods (Mathematics and Science)
Prerequisite: EDU 206

The study of the theory and application in classrooms of Mathematics and Science. Relying on Piagetian development principles, students realize the importance of selecting materials and techniques wisely, especially the use of concrete material in curriculum planning. They also learn to recognize the varied needs of students. This course includes 20 hours of pre-practicum.

EDU 304 four credits
The Language Arts: Reading, Writing, Listening, and Speaking

Theoretical, philosophical and practical issues are utilized in the addressing of the centrality of reading, writing, listening, and speaking to learning. Current and traditional issues and research about language arts instruction, especially the teaching of reading and writing are compared and contrasted. Twenty-five hours of pre-practicum required.

EDU 306 three credits
Curriculum Development in the Middle and High School

Concepts, trends, and terminology associated with curriculum development and implementation in middle and secondary schools. Emphasis will be placed on curriculum patterns in all disciplines, particularly subject matter integration. Students will be required to research articles on curriculum trends and reforms along with a fifteen-hour practicum in their respective disciplines and grade levels.

EDU 307 three credits
Teaching Methodology in the Secondary School
Prerequisite: EDU 207

The traditional and innovative strategies utilized in teaching at secondary school levels. Students are required to prepare a unit and lesson plans in their respective subject areas. They are also responsible for the reading of texts which gives them some insight into the effective teaching of secondary school students. A practicum of 15 hours is also required.

EDU 315 three credits
Reading Improvement in the Middle and High School

The development of knowledge and understanding of corrective and developmental reading. Causes of reading difficulties among secondary school students are discussed along with effective means of remedying them. The study skills needed by senior high school students and strategies for teaching these skills are also discussed.

EDU 317 three credits
Teaching Social Studies in the High School
Prerequisite: Twelve upper-division credits in history, geography, political science, anthropology, sociology, psychology, and/or philosophy.

Objectives, strategies, and material development in the social studies classroom. The teaching of history, geography, political science, anthropology, sociology, psychology and philosophy will be discussed in terms of student modalities, needs, and interests. Units, lesson plans, book, and periodical reporting are course requirements in addition to class and field experience.

EDU 326 three credits
Contemporary Middle and High School Education

Equity, diversity, motivation, alternative assessment, multicultural education, and the social problems of adolescents in middle and high school. Provisions for the inclusion of special needs students, state and federally-mandated educators are pursued through cooperative learning with an instructional prototype as the result. Students are expected to complete extensive reading assignments, written reports, action research, varied assessments, and a demonstration project.

EDU 327 three credits
Classroom Instruction in the Middle and Secondary School

Education methods for middle and secondary levels, designed for prospective teachers in all disciplines and employing a generic/integrated approach to classroom curriculum and pedagogy. Particular attention will be paid to diversified learning needs and styles of all students in the planning, teaching, and evaluation phases of pedagogy. Development of teaching/learning plans, including unit and lesson construction, varied learning strategies, audio-visual materials, and classroom evaluation comprise the core of this middle and secondary education methods course.

EDU 328 three credits
Teaching Social Studies in the Middle School
Prerequisites: EDU 207, 327

The integration of social studies with pedagogy designed for the heterogeneously-grouped student in the middle-school curriculum. Teaching history, geography, political science, anthropology, sociology, psychology, and philosophy for middle-school students will be examined through curriculum development, exhibitions, and portfolios for student evaluation. Current social studies designs and pedagogy for the middle school will be explored through research and periodical readings along with the examination of social studies curriculum, learning resources, and evaluative materials.

EDU 329 three credits
Teaching Social Studies in the Elementary School
Prerequisite: EDU 206 (or concurrent)

The teaching of the social studies within the elementary school. An emphasis will be placed on interactive methodology, current issues and trends, theoretical issues, and unit development and lesson planning. Fifteen hours of pre-practicum is required.

EDU 330 three credits
Teaching Methods and Materials in Managing Business Education

Basic methods and materials that relate to the instruction of business education. Particular emphasis will be devoted to teaching and developing alternative curricula designs and resource units in a variety of business subjects.

EDU 333 three credits
Exceptional Child I

The problems of communication and understanding in children exemplified by the labels "deaf," "hard of hearing," "phasic," "physically handicapped," "speech and hearing handicapped."

EDU 334 three credits
Exceptional Child II

Problems in children and adults represented by the labels "emotionally disturbed," "mentally retarded," and "learning disabled."

EDU 336 three credits
Transpersonal Education

An understanding of the development of analytical and intuitive functioning. An experience-based learning environment supports theoretical understanding and internal awareness. Content includes an examination of altered states of consciousness, and the process of shifting from outer to inner states through the use of techniques such as fantasy, relaxation, music, body movement, sensory stimulation, and natural phenomena as they relate to teaching.

EDU 340 three credits
Methods and Materials in Teaching English in the Secondary School

Objectives, strategies, and material development in the English classroom. The teaching of English will be discussed in terms of student learning modalities, needs, and interests. Units, lesson plans, book and periodical reporting are course requirements in addition to class and field experience. This course is mandated by the Massachusetts Department of Teacher Certification of secondary-school English teachers.

EDU 350 three credits
Educational Research

Prepares students to evaluate work conducted in the area of educational research. Studies include true experiments, quasi experiments, descriptive studies, and sampling methods, along with other areas pertinent to educational research.

EDU 353 three credits
Education: Administration and Supervision

A general introduction to contemporary practices and policies in educational administration and supervision. Instruction will be by lecture, case studies, and student reports. Among the topics to be covered are curriculum planning and design, staff organizations and relationships, and student and community relationships.

EDU 367 three credits
Principles of Counseling: Theory and Practice

An intensive study of counseling techniques and processes through the use of interviews, case studies, tapes and films.

EDU 380 three credits
Seminar in Lifelong Learning: The Elderly
Prerequisite: GRT 201

Seminar in lifelong learning for professionals delivering services to the elderly. Students will be involved in discussions, readings, and experiences intended to lead to deep insight and understanding of the elderly who are learning new attitudes, new skills and gaining new understanding about themselves and society's attitudes toward them. Each student is expected to choose an elderly partner in the community and to spend *at least* two hours a week with that partner.

EDU 393 three credits
The Newspaper as a Tool for Reading Instruction

Analysis of basic reading skills (comprehension, vocabulary development) and transfer of these basic skills to content area reading. Identification of specific reading needs, correlation of reading instruction with a student need assessments, and the development of reading material reflecting reading skills and student needs are also addressed through the use of the newspaper as a tool in reading instruction. This reading course is designed for teachers in grades K-12.

EDU 402 three credits
Tests and Measurements

The development and use of tests and the application of measurement devices in teaching, evaluation and research. This course deals with assumptions of testing and observation, the development and utilization of objectives, and basic statistics of measurement. This course is generally required by most graduate schools of education.

EDU 406 three credits
Seminar in Guidance and Counseling I

An analysis and discussion of contemporary counseling procedures in relation to personality and behavior. The theoretical principles and practical applications of various modalities will be examined in association with sound-film demonstrations of the related practices.

EDU 407 three credits
Seminar in Guidance and Counseling II

Advanced work and research in matters that relate to Guidance and Counseling. The seminar will be organized into topics clustering around the interests of students. Each student will undertake a research project followed by a presentation to the group for examination and criticism.

EDU 410 three credits
Educational Measurements

Assists the student in evaluating research conducted in the area of descriptive and inferential statistics. Concepts such as central tendency, correlation, regression, variability, T-test, analysis of variance, Chi-square, and hypothesis testing will be discussed in depth.

EDU 411 three credits
Children's Literature in the Elementary School

A survey of reading material available for children. Part of the time will be devoted to writing children's stories.

EDU 414 twelve credits
Practicum (Elementary)

A fifteen-week full-time classroom experience under the direction of university faculty and cooperating classroom teachers.

EDU 415 twelve credits
Practicum (Middle and Secondary)

A fifteen-week full-time classroom experience under the direction of university faculty and cooperating classroom teachers.

EDU 416 three credits
Workshop (Elementary)

Small group meetings, workshops, and discussions with university faculty and other key school personnel about critical incidents and issues arising from and related to the interns' actual teaching experiences. It is a required part of the Practicum.

EDU 417 three credits
Workshop (Middle and Secondary)

Small group meetings, workshops, and discussions with university faculty and other key school personnel about critical incidents and issues arising from and related to the interns' actual teaching experiences. It is a required part of the Practicum.

EDU 420 three credits
Teaching Reading in the Elementary School
Prerequisite: EDU 206

The purpose of this course is to develop some understanding of the complex reading process. Instructional materials and organizational patterns to promote growth in basic abilities will be discussed.

EDU 426 three credits
Workshop in Early Childhood Education
Prerequisite: Any course in Early Childhood Education, current work with young children, or permission of instructor.

Creating and using learning experiences in art, music, language, literature, drama, nature study and human, relationships.

EDU 433 three credits
Workshop in Transpersonal Education
Prerequisite: EDU 336 or permission of instructor

Experience-based learning environment for an intensive exploration of intuitive aspects of the individual. Content includes study of a new image of humanness, alternative states of consciousness, impulses toward a harmonious approach to living, and recent physiological research on intuition and creativity.

EDU 451 three credits
Contemporary Issues and Challenges

Understanding contemporary problems such as drugs, violence, sexism, and racism, in relation to the school setting.

EDU 485 three credits
Career Information and Placement

Theory and research in career development, functions of occupational information in guidance, the role of the counselor in placement, and models for an effective placement office.

EDU 495 three credits
Independent Study

Additional areas needed for teacher certification, including methods in specific disciplines, reading, etc. Terms and hours will be arranged. Confer with appropriate members of the Education Department.

EDU 496 three credits
Directed Study

Confer with Department Chairperson and Director of Teacher Certification.

EDU 900
Contract Learning

English

Faculty and Fields of Interest

In scheduling its courses, the English Department recognizes its obligations to its English majors—a group that includes those who intend to go on to graduate study, those who intend to enter the teaching profession, and those who plan careers in such areas as public relations, editorial work, journalism, technical and professional writing, creative writing, personnel work, and the like. The department also recognizes its obligations to non-English majors—those students who elect English courses in order to gain some acquaintance with the rich cultural heritage that English, American, and comparative literature provide, and those who, through advanced courses in writing, wish to improve their powers of communication.

In addition, the department provides a Freshman program that includes introductory composition courses (ENL 100, 101, 102), testing and evaluation of writing ability of incoming students, English-as-a-second language instruction, and professional communications courses for the students in business, technology, engineering, and computer science programs.

English majors are offered a choice of three options: the literature option, the writing/communications option and the drama/film studies option, each leading to a Bachelor of Arts degree. These options reflect the department's conviction that perceptive reading, effective writing, and clear thinking are interconnected.

The English department also offers a graduate program leading to a Master of Arts degree in professional writing designed to give students a background in rhetorical and communication theories and the advanced skills necessary for professional jobs in business, government, media, teaching, industry, or publishing.

Marie L. Ahearn American literature

James Bobrick modern poetry, Renaissance literature, children's literature, fantasy

Tish Dace contemporary drama, Black drama, women's drama, review writing

Raymond A. Dumont composition theory, professional communications, computer applications, rhetorical theory

Joseph Foley professional communications, computer applications in literary research

Louise A. Habicht American literature, regional literature, multicultural American literature

Everett H. Hoagland African-American literature, African and West Indian literature, creative writing (poetry)

Sue E. Houchins African-American literature, women's studies

Catherine Houser literary nonfiction, creative writing (fiction), professional writing

Sue Yin Hum rhetoric and composition, composition theory

Barbara R. Jacobskind American literature, women's literature

Joan Kellerman ESL, creative writing (poetry), comedy, literature and psychology

John M. Lannon composition, professional writing

Richard J. Larschan medieval literature, 18th-century British literature, satire

James E. Marlow 19th-century British literature, theory of fiction, creative writing (fiction and drama)

James M. Nee myth and literature, Irish literature, acting, film and video

William Nelles critical theory, medieval literature

Peter Owens journalism, editing, research methods, computers and writing, creative writing (fiction)

Alan R. Rosen Victorian poetry and poetics, Modern British and American fiction, research methods, scriptwriting

Yvonne M. Sandstroem 17th-century British literature, Milton, women's literature, critical writing, translation

Roger Sorkin Shakespeare, Greek through 20th Century drama, film

Lulu C. H. Sun rhetoric and composition, English education, English romantic literature

Edwin J. Thompson (chairperson) modern novel, contemporary fiction, comedy

Linus Travers restoration-18th-century British literature, drama, comic literature

John Luther Wallin rhetoric, ethics in professional writing, environmental writing, documentary writing, grants writing

Robert P. Waxler romanticism, Jewish studies, professional writing, communication theory

Charles W. White III American literature, film

English Major
BA degree

To receive a degree with a major in English, students must demonstrate their ability to read intelligently and perceptively in such genres as fiction, poetry, and drama, in works of literary criticism and literary history, and in works dealing with the nature of language itself. Candidates must also demonstrate the ability to write effectively, to use a library efficiently and honestly, to deal critically with generalizations about historical periods and genres, and to handle a variety of critical questions with some maturity.

The English department offers three options within the major: the literature option, the writing/communications option, and the drama/film studies option.

Writing/communications candidates must demonstrate their ability to analyze rhetorical problems while composing effective, well-formulated documents for specified audiences and to create documents using appropriate computer software.

Students who select the drama/film studies option will master analytical approaches to and historical development of dramatic literature and film as well as their relationship to the development of other genres. In addition, they will learn to create effective written work in the form of reviews, critical essays, and stage or screen plays. Although this option will concentrate on courses in literature and writing, students are encouraged to participate in theater and/or film production and to arrange an appropriate off-campus applied internship.

English Major
Literature Option

Requirements		Credits
ENL 300, 302	Survey of British Literature I and II	6
ENL 303	Survey of American Literature I	3
ENL 319	Shakespeare	3
ENL 236	Ancient World to the Renaissance	3
ENL 260 or 361	Intermediate Composition or Techniques of Critical Writing	3
One of the following:	ENL 305, 307, 308, 321	3
Three literature courses at the 300-level		9
One 400-level literature seminar		3
Three additional English courses		9
	Total	**42**

English Major
Writing/Communications Option (effective through the Class of 1994)

ENL 300, 302	Survey of British Literature I and II	6
ENL 303	Survey of American Literature I	3
ENL 319	Shakespeare	3
ENL 236	Ancient World to the Renaissance	3
ENL 260	Intermediate Composition	3
One of the following:	ENL 305, 307, 308, 321	3
ENL 355 or ENL 356	Rhetorical Theory **OR** Language and Culture	3
One 400-level writing/communications workshop		3
Three additional writing/communications courses		9
Two additional English courses		6
	Total	**42**

English Major
Writing/Communications Option (effective for Class of 1995 and beyond)

		Credits
ENL 300, 302	Survey of British Literature I and II	6
ENL 303	Survey of American Literature I	3
ENL 319	Shakespeare	3
ENL 236	Ancient World to the Renaissance	3
ENL 260*	Intermediate Composition (must be taken at UMass Dartmouth)	3
One of the following:	ENL 262, 265, 266, 350, 361	3
ENL 355 / ENL 356	Rhetorical Theory **OR** Language and Culture	3
One 400-level writing/communications workshop (or approved 600-level graduate writing course)		3
Three additional writing/communications courses, one at the 300-level		9
Two additional English courses, one a literature course		6
	Total	**42**

English Major
Drama/Film Studies Option (new for 1993-94)

ENL 300, 302	Survey of British Literature I and II	6
ENL 303	Survey of American Literature I	3
ENL 319	Shakespeare 3	
ENL 236	Ancient World to the Renaissance	3
ENL 260*	Intermediate Composition (must be taken at UMass Dartmouth)	3
ENL 253 / ENL 255	Introduction to Drama **OR** Introduction to Film	3
ENL 321	Golden Ages of Drama	3
ENL 362	Review Writing	3
One 400-level seminar in dramatic literature or film; or writing workshop in drama or film (or approved 600-level graduate writing course)		3
Two 300-level drama or film courses		6
One creative drama or film course		3
One additional English course		3
	Total	42

*a prerequisite for any 300-level writing course

English Minor
Literature Option

Requirements

Three of the following:

	Credits
ENL 300, 302, 303, 304, 236	9
ENL 319 Shakespeare	3
Three additional literature courses	9
Total	**21**

English Minor
Writing/Communications Option

Three writing courses (one at the 300-level)	9
One 400-level writing workshop	3
Three literature courses (one at the 300-level)	9
Total	**21**

English Honors Program

Candidates must have completed a minimum of 6 English courses beyond the freshman level and have maintained a minimum GPA of 3.2 in all English courses taken, to be considered for admission to English Honors. Qualified candidates will be admitted upon recommendation of an English department faculty member willing to serve as sponsor.

Requirements
The program involves a closely supervised, two semester (6-credit) investigation into some literary, creative, or rhetorical topic devised by the student in consultation with the faculty sponsor, and requiring a substantial amount of independent reading and research.

The program consists of two separable halves: The first part (ENL 491 or ENL 493) consists of intensive reading and study in the area of the student's proposal, based on the approved bibliography. By the end of semester I, students must (1) present a written proposal for an Honors Project and (2) take a written examination in the area of study—both to be administered and graded by the faculty sponsor. In this way students may receive three credits and a grade even if they decide not to continue in the full program. Based on the outcome of written work to date, the faculty member can assess whether to permit the student to continue: a minimum grade of "B" is required.

In the second semester the student composes the Honors paper (ENL 492 or ENL 494), and a grade is awarded on the basis of this final paper. However, "Honors" will be awarded separately, according to criteria set forth below. (Hence it will be possible to make independent decisions on the awarding of "Honors," or mere credit.)

Criteria and Methods of Evaluation
A three person faculty committee—preferably one of them a specialist in the field under investigation—will judge all written work and administer an oral examination on the subject of the Honors Thesis (Students are entitled to select one of their examiners.) This committee will then award "Honors" or not, on the basis of the following criteria: (1) overall seriousness of purpose; (2) mastery of scholarly or creative methodology; (3) sophistication of insights achieved; (4) ability to relate findings verbally.

Implementation
Each spring the department will inform all junior English majors with the minimum grade point average that they qualify to participate in the Honors Program, and indicate what the program entails. Students will be responsible for selecting their own sponsors. No department member will be expected to direct more than one Honors student per year.

Note: ENL 101 and ENL 102 are prerequisites for all upperclass English courses unless otherwise noted.

ESL 100 three administrative credits*
Basic English as a Second Language

An introductory review of English language, reading, writing, speaking, and study skills designed for non-native speakers of English. This course requires work in the language lab and the Writing/Reading Center as well as class. The course focuses on ESL readings, idiomatic usage, vocabulary building, grammar review, pronunciation, conversation, listening skills, and composition.

ESL 101 three credits
English as a Second Language
Prerequisite: ESL 100 or by pre-test placement

A writing course for non-native speakers who have developed basic proficiency in English. Students address rhetorical problems using complex syntactical and grammatical structures suitable for abstract thinking and academic discourse. Preparation for ENL 101.

ENL 100 three administrative credits*
Basic English Review

A course offering writing practice for those students lacking sufficient preparation for ENL 101. This course develops rhetorical awareness and effectiveness, as well as fluency in standard English, through focus on essential features common to any writing situation (purpose, audience needs, content, organization, style, and correctness) at the level of paragraph and basic essay. One hour per week in the Writing/Reading Center in addition to three class hours.

*administrative credits do not count towards the total required for graduation

ENL 101 three credits
Critical Writing and Reading I

Writing in a variety of modes for various purposes and audiences; writing to communicate and to learn in the humanities. Rhetorical choices and revision strategies will be studied. Students will develop skill in critical reading necessary for thinking and writing.

ENL 102 three credits
Critical Writing and Reading II

A course designed to advance the rhetorical skills and understanding developed in ENL 101. Critical reading of various literary genres and analytic and argumentative writing assignments enhance the student's awareness and use of effective language.

ENL 200 three credits
Studies in Literature

A study of selected readings dealing with a special topic chosen by the instructor. Recent special topics include New England Literature, Children's Literature, the Artist in Literature, Black Music and Black Literature.

ENL 201 three credits
Major British Writers

A study of selected works, from several genres, by outstanding British authors.

ENL 202 three credits
Major American Writers

A study of selected works, from several genres, by outstanding American authors.

ENL 203 three credits
Survey of World Literature I

A study of selected masterpieces from the Golden Age of Greece to the Renaissance.

ENL 204 three credits
Survey of World Literature II

A study of selected masterpieces from the Renaissance to the present.

ENL 206 three credits
Detective Fiction

A study of famous mystery, suspense, and detective fiction.

ENL 208 three credits
Myth and Literature

An exploration of the role of myth and dream in poetry, fiction, film, and drama. Heavy emphasis on Jungian and Freudian interpretation of myth, but not to the exclusion of other anthropological, psychological, or theological approaches, through readings in Homer, Ovid, *Beowulf,* Shakespeare, Coleridge, Joyce, and Hesse.

ENL 209 three credits
The Bible as Literature

Readings from the Old and New Testaments discussed in the context of the history of ideas, literary genres, the effectiveness of communication to the intended audience, and influences on later literature.

ENL 210 three credits
Literature of the American West

An exploration of the myths and realities of the American West (west of the Mississippi) as they are reflected in literature—e.g., the cowboy, westward expansion, the Spanish conquistadors.

ENL 211 three credits
The American Dream

A study of the meaning of success as reflected in works ranging from those of Benjamin Franklin and Horatio Alger to the plays of Arthur Miller.

ENL 214 (WMS 214) three credits
African-American Literature

Chronological survey beginning with Gustavus Vassa and Robert Hayden's "Middle Passage" and continuing through contemporary writers. Toward the end of the course there will be focus on new women writers and major writers through the 1990s.

ENL 215 three credits
West Indian and African Literature

A study of important and innovative West Indian and contemporary African writers.

ENL 216 three credits
Comedy and Satire

A study of the philosophy and psychology of literary and other forms of comedy and satire, including works by such writers as Aristophanes, Shakespeare, Swift, Voltaire, Wilde, Shaw, Waugh, Heller, Vonnegut, and others, as well as film artists such as Chaplin, Sellers, and Woody Allen.

ENL 217 three credits
Greek Myth and Drama

An exploration of the role of myth in the creation of the plots of Aeschylus, Sophocles, Euripides, and Aristophanes.

ENL 218 three credits
Literature and Society

A study of the relationship between the individual and society through readings in modern literature.

ENL 219 three credits
Classicism and Romanticism

A course contrasting the two major modes of thought in Western Civilization to show what part each has played in the creation of major works of literature, with consideration of analogous examples from music, painting, sculpture, and architecture.

ENL 221 three credits
Special Topics in Comparative Literature

A course dealing with literature of two or more countries, based on a topic selected by the instructor.

ENL 223 three credits
Fantasy Literature

A study of fantasy as a genre, comparing other works with Tolkien's *Lord of the Rings* trilogy.

ENL 224 three credits
Jewish Literature

A study of modern Jewish stories and novels with emphasis on such writers as Singer, Bellow, Wiesel, Malamud, and others.

ENL 225 three credits
Native American Literature

Reading, studying, thinking critically, and writing about Native American literature.

ENL 226 three credits
Multicultural American Literature

A study of imaginative literature by writers representing the rich variety of racial, ethnic, religious, social, and regional groups in America. Specific focus of the course may vary depending on the instructor.

ENL 227 three credits
Arts and American Culture I

A study of the role of the arts and the artist as creator, carrier, and critic of American culture through examination of literary works and discussion of works of representative artists and architects, from the Colonial period to 1870.

ENL 228 three credits
Arts and American Culture II

Continuation of ENL 227 with emphasis upon late nineteenth and twentieth-century America.

ENL 236 three credits
Ancient World to the Renaissance

A study of the origins of English literature embedded in Biblical, Classical, and Medieval sources, with special emphasis on Homer, the Greek dramatists, Virgil, and Dante. Designed to help English majors understand the allusions that enrich English literature.

ENL 245 three credits
Images of Woman in Literature

A study of archetypes and stereotypes of women in literature from the ancient world to the present in an attempt to reevaluate traditional literary criticism and the way authors have used images of women to create character, plot, etc. Cross-listed WMS 245.

ENL 246 three credits
Women Writers

Examination of the relationship between the woman writer and her work through a study of literature by and about women. Satisfies literature distribution requirement. Cross-listed WMS 246 and AAS 246

ENL 249 three credits
The World of Work

An examination of the personal and social importance of work in human society through literary, sociological, and anthropological texts which explores these issues: the meaning, value, and organization of work in non-industrial and indus-trial societies; the effects of value systems on the work process; the problems surrounding work in contemporary America (gender, age, race, class, worker/management relations); and the future of work will be explored. Cross-listed SOC 249/ANT 249.

ENL 250 three credits
Introduction to Poetry

A course in the analysis of poetry showing how formalistic and thematic elements in the poem interact to create meaning through an examination of a variety of poetic forms.

ENL 251 three credits
Introduction to the Short Story

A consideration of short fiction to illustrate the history, range, and properties of the genre. The course treats such representative authors as Poe, Hawthorne, Tolstoy, Joyce, Faulkner, and other 19th and 20th century figures from a variety of national literatures.

ENL 252 three credits
Introduction to the Novel

A study of how to read and identify the various types of novels, coupled with an introduction to the history of the novel.

ENL 253 three credits
Introduction to Drama

An introductory course in how to read and view a play, including instruction in the nature and methods of tragedy, comedy, melodrama, tragi-comedy.

ENL 254 three credits
Autobiographical Writing

A course emphasizing the development of techniques of life-writing through exercises in journal-keeping and autobiographical writing. The course includes readings in sample journals and autobiographies and study of autobiographical theory.

ENL 255 three credits
Introduction to Film

Provides beginning students of film with a comprehensive view of its history, aesthetics, and critical terminology. Attention will also be paid to elementary film theory, to a comparison of film with other genres (especially drama and narration), and to representative works of such major figures in the artistic development of the genre as Chaplin, Renoir, Welles, Bergman, Hitchcock, and Kurosawa.

ENL 260 three credits
Intermediate Composition

A course emphasizing the development of skill in organizing materials, the formation of a lively and concrete style and an authentic personal voice, and the growth of useful techniques in the arts of exposition, persuasion, and argumentation.

ENL 262 three credits
Journalism I

An exploration of the principles of journalism as applied in effective news writing and media reporting. Students develop skills in story design and structure, note-taking and story development, accuracy, balance, fairness, style, and writing technique. Legal and ethical issues are explored in detail as students develop and write local stories.

ENL 265 three credits
Business Communications

An introduction to the communication skills required in business and industry which emphasizes writing and revising business reports and proposals, letters and memorandums and on preparing and presenting oral reports. Computer applications are included.

ENL 266 three credits
Technical Communications

An introduction to the many purposes, audiences, forms, and formats of technical documents and professional correspondence. Students practice writing and editing letters, memos, and reports to achieve worthwhile content, sensible organization, and readable style and learn techniques of audience-and-use analysis to adjust a message's level of technicality to the needs and background of its audience. The course focuses throughout on writing as a deliberate process of deliberate decisions. Computer applications included.

ENL 267 three credits
Creative Writing: Poetry

The study of contemporary techniques in the writing of poetry. Manuscripts are read and discussed in class and during individual conferences. Workshop format.

ENL 268 three credits
Creative Writing: Fiction

A course concentrating on the techniques of writing fiction. Manuscripts are read and discussed in class and during individual conferences. Workshop format.

ENL 269 three credits
Creative Writing: Drama

A study of the fundamental principles of dramaturgy. Manuscripts are read and discussed in class and during individual conferences. Workshop format.

ENL 270 three credits
Speech Communication

An introduction to the art of public speaking through the study of effective principles combined with practice in speaking before a group.

ENL 271, 272 three credits each
Oral Interpretation of Literature I, II

Study of and practice in the oral interpretation of literary works with heavy emphasis on acting and the Stanislavski method.

ENL 276 three credits
Film as Drama

An intensive study of outstanding films with attention to the techniques of film criticism.

ENL 278 three credits
Writing for Media

An introduction to writing for various media, including radio and television, advertising and public relations, focusing on adapting message to medium, audience, and purpose.

ENL 279 three credits
Practicum in Writing and Tutoring

Practicum in writing and tutoring, designed to advance the writing skills developed in ENL 101 and ENL 102 and introduce students to the theory of tutoring and individualized instruction. This course will also include tutoring at the Writing/Reading Center.

ENL 293 three credits
Literature of the American South

A study of such Southern writers as Faulkner, Wolfe, Warren, McCullers, O'Connor, Ellison, Ransom, Tate, and Tennessee Williams with the following questions in mind: What was the mood of the South which produced the 20th century renaissance? In what manner are the works related to or dependent on the writers' Southern background? What is the relationship of Southern to American literature?

ENL 299 three credits
Introduction to Shakespeare

A course designed primarily for non-English majors, which examines some of the typical plays of the greatest dramatist in the English language.

ENL 300 three credits
Survey of British Literature I

A study of British literature from *Beowulf* to 1798, with attention given to the cultural and historical context.

ENL 302 three credits
Survey of British Literature II

A study of British literature from 1798 to the mid-20th Century, with attention given to cultural and historical context.

ENL 303 three credits
Survey of American Literature I

A survey of American writing from the Colonial Period to the Civil War, with emphasis on the historical, cultural, and

philosophical developments which parallel the development of an American literature.

ENL 304 three credits
Survey of American Literature II

A continuation of ENL 303. A survey of American writing from the Civil War to the present, with some emphasis on historical, cultural, and philosophical developments in America during the period covered.

ENL 305 three credits
Early English Literature

Reading and discussion of the major writings in English from *Beowulf* to Caxton with particular emphasis on Chaucer.

ENL 307 three credits
The English Renaissance

A chronological overview of the major literary works, themes, and genres of the English Renaissance from Caxton and the inception of printing through Milton and the last of the great Renaissance epics. The course focuses on the development of poetic genres and on representative prose forms. Writers studied include Spenser, Sidney, Shakespeare, Donne, Herbert, Vaughn, and Milton.

ENL 308 three credits
The Enlightenment

A study of English Neo-classical and Pre-romantic writings by Dryden, Swift, Pope, Fielding, Johnson, Boswell, Goldsmith, and others.

ENL 309 three credits
The Romantic Age

A survey of English literature from 1796-1832 stressing the major poets—Blake, Wordsworth, Byron, Shelley, and Keats, with some study of novels and personal essays.

ENL 310 three credits
The Victorian Age

A study of the major English writers of non-fiction from 1832-1900, covering some prose non-fiction (Carlyle, Ruskin, Mill), but emphasizing such poets as Tennyson, Browning, Arnold, Rossetti, Swinburne, Meredith, Hopkins, and Housman.

ENL 311 three credits
The Victorian Novel

A study of the Victorian novel, both historically and generically, from Jane Austen to Thomas Hardy, including works by Austen, the Brontës, Dickens, Thackeray, George Eliot, Trollope, Meredith, and Hardy.

ENL 314 three credits
Colonial American Literature

A study of 17th- and 18th-century American literature from Captain John Smith through Benjamin Franklin with emphasis on the historical background and the various types of literature produced in the period.

ENL 315 three credits
The American Renaissance

A study of selected major writers from mid-19th-century America: Poe, Hawthorne, Melville, Emerson, Thoreau, and Whitman. Additional readings about the intellectual and social movements of the period are required.

ENL 316 three credits
The 19th Century American Novel

A study of American novelists from Cooper to Crane and Chopin with focus on individual novels as works of art and as examples of the development of the novel form in America in the 19th century.

ENL 317 three credits
19th Century American Poetry

A careful study of the major American poets of the 19th century from Freneau to Whitman and Dickinson.

ENL 318 three credits
Chaucer

A course designed primarily for English majors involving an intensive and critical reading of Chaucer's major writings with attention to his cultural context.

ENL 319 three credits
Shakespeare

A careful reading of Shakespeare's plays selected from the comedies, tragedies, and histories. The course explores Shakespeare's development as a dramatist, the reasons for his reputation as the greatest poet in the language, and the manner in which his plays reflect Elizabethan custom, attitudes, and beliefs. Some outside readings required in Shakespearean criticism and in the background of the period.

ENL 321 three credits
The Golden Ages of Drama

A course dealing with representative plays from the most famous and most productive eras in the history of world drama—Fifth Century B.C. Greece, the Middle Ages, the Renaissance, the age of Molière, and the realistic and romantic drama of 19th century France and Germany.

ENL 322 three credits
History of Literary Criticism

An overview of critical and aesthetic thought concentrating on the Classical tradition, the Neo-classical heritage, the English critics, Sidney through Eliot, and modern criticism through the post-structuralists.

ENL 324 three credits
Modern Literary Criticism

A general exposure to primary documents of modern critical theory leading up to and including Structuralism and Post-structuralism.

ENL 326 three credits
Irish Literary Revival

A course dealing with the development of Irish literature from the end of the 19th century through the first decades of the 20th century. Writers include Yeats, Joyce, Synge, O'Casey. The course examines the cultural, historical, and political background of Anglo-Irish relations.

ENL 330 three credits
20th Century British Fiction

A study of the 20th-century British novel, including such authors as Conrad, Woolf, Joyce, Lawrence, Forster, Huxley, Evelyn Waugh, Cary, and Greene.

ENL 332 three credits
20th Century British Drama

A study of British drama from the comedy of manners of Wilde and Shaw to the theater of the absurd of Beckett and Pinter.

ENL 333 three credits
Modern British Poetry

A study of the chief trends and the major poets and movements in modern British poetry.

ENL 335 three credits
20th Century American Fiction—1900-1945

A study of the 20th-century American novel from the naturalists to the end of World War II, including Norris, Dreiser, Anderson, Wolfe, Hemingway, Faulkner.

ENL 336 three credits
20th Century American Fiction—1945 to the present

A study of significant fiction in America since mid-century, including Bellow, Ellison, Heller, Pynchon, LeGuin, Doctorow, Morrison, O'Brien, and others.

ENL 337 three credits
20th Century American Poetry

A study of major American poets of this century from Frost to Richard Wilbur.

ENL 338 three credits
Modern Drama
Prerequisites: ENL 101, 102

A study of modern dramatists from Ibsen, Chekhov, and Strindberg through such playwrights as Shaw, Brecht, O'Neill, Galsworthy, Eliot, Williams, Miller, Giraudoux, Albee, Pinter, and Ionesco.

ENL 339 three credits
American Drama
Prerequisites: ENL 101, 102

A study of American drama from its beginnings to the present.

ENL 340 three credits
Literature and Psychology

An introduction to psychological interpretations of literary works, including character analysis, ethnopoetics, and the psychology of audience. The course requires reading of selected literary texts in all genres, as well as works by psychoanalytical literary critics, philosophers, and anthropologists.

ENL 346 (WMS 346) three credits
Portraits of Older Women
Prerequisite: ENL 102

This team-taught course presents a multidisciplinary perspective of the phenomena of women and aging in American society. The experiences of older women are explored through literature, oral histories, and intergenerational class projects to determine the forces that affect quality of life and productivity in later life.

ENL 347 (WMS 347) three credits
Special Topics in Women's Literature

Advanced study of a specialized topic chosen by the instructor.

ENL 348 three credits
American Women Playwrights
Prerequisite: ENL 102

Analysis, evaluation, comparison, and appreciation of plays by 20th-century American women playwrights and insights into their themes and the images of women which they create.

ENL 349 three credits
Teaching English: Classroom Methods
Prerequisites: ENL 260

Theory and practice of teaching secondary English in its three dominant areas of reading, writing, and rhetorical analysis of literary works. Special focus will be upon how students acquire language and theoretical skills within the complex milieu of classrooms and how teachers can enhance that learning by translating sound theory into a broad range of learning activities and classroom strategies. This course is required for certification in secondary English teaching in the Commonwealth of Massachusetts.

ENL 350 three credits
Report and Proposal Writing
Prerequisite: ENL 260

An advanced professional writing course focusing on methods of gathering, analyzing, organizing, and presenting data in graphic, written, and oral forms; on formatting reports and proposals; and on revising and editing for clarity and conciseness.

ENL 355 three credits
Rhetorical Theory
Prerequisite: ENL 260

A study of rhetorical traditions, focusing on major theoreticians from Aristotle to Kenneth Burke. Depending on instructor, the course will concentrate on such topics as Classical rhetoric (from 5th-century B.C. through the English Renaissance), 18th-century rhetoric (Smith, Blair, Whately, Campbell), or contemporary rhetoric (Toulmin, Burke, Richards, Perelman, Kinneavy, Searle).

ENL 356 three credits
Language and Culture
Prerequisite: ENL 260

An examination of language's pivotal role in shaping a culture's values, beliefs, biases, and world view. By reading a broad range of essays, excerpts, and articles, students will learn how language shapes thought, molds perceptions, and determines how we think about and react to various people, groups, and cultures. Students will write a series of articles for lay audiences based on what they learn during the course.

ENL 360 three credits
Advanced Thinking and Writing
Prerequisite: ENL 260

An advanced writing course emphasizing the application of the principles of argument (from ENL 260) to a variety of rhetorical situations. The course covers refinement of notions of persuasive content and logical organization in any discourse, development of a keen sense of style as outlook—of the figures of language and the range of connotation.

ENL 361 three credits
Techniques of Critical Writing
Prerequisite: ENL 260

An advanced critical writing course with emphasis selected by the instructor. The course requires composition of a wide array of essays ranging from critical analyses and reviews to various types of persuasive discourses. Intensive practice in the critical or rhetorical evaluation of selected texts.

ENL 362 three credits
Writing Reviews
Prerequisite: ENL 260

Fosters the ability to write effectively and to communicate the journalist's own interpretation and evaluation of art forms. Students produce reviews suitable for publication on and off campus.

ENL 363 three credits
Journalism II
Prerequisite: ENL 260

An exploration of news writing and reporting in selected areas of politics, social services, social science, technology, environment, law, natural science, education, arts, media, business, and other significant media subject areas. The course concentrates on effective research, story design, and writing technique for news stories and features across these areas.

ENL 364 three credits
Feature Story and Article Writing
Prerequisite: ENL 262 or ENL 363

An exploration of the problems and principles of such feature story modes as profiles, how-to articles, narrative adventures, humor, news features, investigative reporting, interpretive and analytic reporting, opinion columns, and editorials.

ENL 365
The Community and Environmental Reporting
Prerequisite: ENL 260; CHM 130, PHY 162, or BIO 112

Studying and reporting on ways in which communities see themselves and their environments, and ways in which these self-images lead to specific policies and actions. This course focuses on researching and writing and explores the rhetorical situation for the reporter and the treatment meted out to nature.

ENL 366 three credits
Creative Writing: Forms of Fiction
Prerequisite: ENL 268 or permission of instructor

Exploration of the forms of fiction and how a writer's creative choices with regard to form determine characterization, dialogue, plot, and narration. Assignments will include writing various creative pieces. Forms include, but are not limited to, the paragraph, the short short story, the short story, the novella, and the novel.

ENL 368 three credits
Writing in the World of Computers
Prerequisite: ENL 260

A course concentrating on the special requirements of writing for and about computers, including the following: hardware and software reviews, reports, documentation, manuals, interactive communication, screen and program design. The course explores principles of applied rhetoric in electronic communication. No prior programming or computer experience is required.

ENL 370 three credits
Women, Writing, and the Media
Prerequisite: ENL 260

Studying and writing about issues related to gender, gender-specific language, and the representation of women in various forms of media. The course focuses on discovering, exploring, researching, and writing about women's issues. Cross listed as WMS 370

ENL 371 three credits
Broadcast Journalism
Prerequisite: ENL 260

An introduction to the practice and theory of producing the news for radio and television. Students analyze programs for content, audience, format,

presentation style, and technical quality and produce programs through gathering, writing, editing, announcing, engineering, and recording news for radio and television broadcasting.

ENL 372 three credits
Writing About Popular Culture
Prerequisite: ENL 260

Studying, thinking critically, and writing about popular culture and issues arising from it. This course involves exploring, researching and writing about such diverse and interconnected cultural elements as literature, politics, media, religion, science, food, fashion, sports, and the arts.

ENL 376 three credits
Topics in Video
Prerequisites: ENL 101, 102

Video production: theory, writing and techniques of video production. This course will introduce students to the scriptwriting, theoretical, and scientific readings and practical techniques of video production. Students will examine the theory and acquire training in the range of technical skills of this medium from story board to editing suite: scripting, composition, lighting, sound, camera operation, and video and audio editing.

ENL 377 three credits
Special Topics in Film and Video

Advanced and specialized studies in film (e.g., Shakespeare on Film) or in video production; topic selected by the instructor.

ENL 378 three credits
Screenwriting
Prerequisite: ENL 260

An introduction to the principles of dramatic film writing, with emphasis on structure and form from treatment to finished script.

Seminars and Workshops
three credits each

Seminars and workshops are open only to junior and senior English majors and minors. English majors in the Literature Option must take a literature seminar; English majors and minors in the Writing/Communications Option must take a writing workshop.

ENL 400
Seminar in American Literature

ENL 401
Seminar in 19th-Century American Literature

ENL 402
Seminar in 20th-Century American Literature

ENL 403
Seminar in an American Author

ENL 410
Seminar in British Literature before 17th Century

ENL 411
Seminar in 17th-Century British Literature

ENL 412
Seminar in 18th-Century British Literature

ENL 413
Seminar in 19th-Century British Literature

ENL 414
Seminar in 20th-Century British Literature

ENL 415
Seminar in a British Author

ENL 421
Seminar in American Literature Theme

ENL 422
Seminar in British Literature Theme

ENL 424
Seminar in Genre Studies

ENL 425
Seminar in Comparative Literature

ENL 429
Seminar in Critical Methods

ENL 430
Seminar in Bibliography and Research Methods

ENL 450
Advanced Poetry Workshop

ENL 451
Advanced Fiction Workshop

ENL 452
Playwriting Workshop

ENL 453
Advanced Writing Workshop

ENL 454
Advanced Journalism Workshop

Honors Courses

The following courses are arranged with permission of the instructor, the department chairperson, and the dean of the college or through the procedures specified for participation in honors work.

ENL 491 three credits
Honors Study: Literature

ENL 492 three credits
Honors Thesis: Literature

ENL 493 three credits
Honors Study: Writing

ENL 494 three credits
Honors Paper: Writing

ENL 495
Independent Study

ENL 496
Directed Study

ENL 900
Contract Learning

Graduate Courses in Professional Writing

Note: Undergraduates may be prohibited from taking graduate courses, or access to them may be limited.

ENL 501 three credits
Rhetorical Theory

Aristotle defined rhetoric as "the faculty of discovering all the available means of persuasion in any given situation." W. Ross Winterowd defines it as "the global art that . . . studies the manifestations of all human discourse, not just persuasion." We will study our rhetorical tradition, focusing on major theorists from Aristotle to Foucault. Depending on the instructor, the course may concentrate on such topics as Classical Rhetoric (from the fifth century B.C. through the English Renaissance), Eighteenth Century Rhetoric (Smith, Blair, Whately, Campbell), or Contemporary Rhetoric (Toulmin, Burke, Richards, Perelman, Kinneavy, Searle, Foucault, and Derrida).

ENL 502 three credits
Communication Theories

How does language shape thought? How do humans communicate? What are the effects of mass communication? The study of communication draws from a range of disciplines including linguistics, semantics, philosophy, psycholinguistics, psychology, psychoneurology, and soci-ology to derive answers to how humans, as symbol makers, communicate. We will study communication models, mechanistic and transactional analogues, intra- and interpersonal systems, and systems theories. Topics will include: information processing, language as transactional process, communication models, rules of perceptual organization, communication networks, dyadic versus group and mass communication, and nonverbal and interpersonal interactions.

ENL 503 three credits
Language and Its Use

We will study the various grammars and the controversies surrounding them. Attention will be given to the history and growth of language, the artistic language of literature, and the basic vocabulary of language arts (e.g., style, rhetoric, linguistics, semantics, and technical versus artistic language).

ENL 505 three credits
Stylistics

This course explores the analytical and creative possibilities of language. Through both a theoretical discussion and practical application, we will examine how basic elements of writing, such as diction - including figurative language - syntax, structure, and rhetorical style, express and modulate meaning in a variety of writing forms. Students will analyze, create, and critique imaginative pieces, including advertising copy, written speeches, song lyrics, technical articles, short fiction poetry, drama, and literary nonfiction.

ENL 510 three credits
Principles of Investigation, Field Research and Validation

Emphasis will be on primary and secondary research techniques of information-gathering. Course content includes qualitative methods, participant observation, in-depth and formal interviewing techniques, use and abuse of statistical inquiry, principles of controlled studies and causation, and philosophical inquiry into empiricism and its limitations. Stress will be on both generating research and using that research in specific writing situations.

ENL 520 three credits
Law and Ethics in Professional Writing

This course gives students a grounding in the legal and ethical practices that will keep them in safe territory and allow them to make sound writing decision. Legal issues covered include freedom of the press, libel, invasion of privacy, research sources, obscenity, and copyright.

ENL 550 three credits
Independent Study

Under special circumstances, graduate students may take a maximum of two 300-400 level undergraduate courses for graduate credit. Students cannot do "independent study"; they must take a course, and they must arrange with the instructor to do more writing than required of the undergraduates. This option is not intended for students needing to make up deficiencies in order to perform at an appropriate level in graduate courses, but as an opportunity for students to explore specialized areas of interest. Before registering for this course, students must write a proposal that clearly delineates the writing projects they will undertake. The proposal then must be signed by the course instructor and approved by the director of graduate study.

ENL 600 three credits
Technical and Business Writing

This course introduces students to the many purposes, audiences, forms, and formats of technical documents and professional correspondence. They will receive practice in writing and designing a variety of documents to achieve worthwhile content, sensible organization, and readable style. Focus will be on techniques of audience-and-use analysis to adjust a message's level of technicality to the needs and background of its audience. Focus throughout is on writing as a deliberate process of deliberate decisions.

ENL 601 three credits
Report and Proposal Writing

This course is case-approach to researching, planning, writing, and revising recommendation reports and proposals to be used by decision-makers. Students will do primary research, on-line bibliographic searches, and learn how to access government documents. They also will learn techniques for writing and designing long reports and proposals for multiple audiences.

ENL 602 three credits
Grants Writing

The course includes intensive research into funding sources, analysis and interpretation of guidelines and writing several drafts of grant proposals. This specialized rhetorical form involves analyzing complex audiences and learning persuasive techniques unique to grants writing.

ENL 603 three credits
Communicating within Organizations

This course is designed to give students an understanding of organizational communication patterns and the role communication plays in organizations. Among the topics covered are organizational theory and structure, interpersonal and group relations, nonverbal communication, communication nets, feedback, and informal and decision-making groups. Students will be required to apply theory and communication methods to various purposes and audiences.

ENL 605 three credits
Persuasive Writing and Speaking

We will survey of strategies from Aristotle through Madison Avenue, focusing on ethics and legality and techniques of argumentative discourse: its substance, shape, and style. Emphasis also is on avoiding logical fallacies composing persuasive messages for clients, customers, colleagues, supervisors, subordinates, and audiences; on writing advertising copy and on giving oral presentations.

ENL 610 three credits
Rhetorical Strategies: Achieving Effective Style

The theory and practice of style as a writer's "way of seeing." By analyzing and emulating outstanding contemporary prose, we develop a style vocabulary, and we explore possible "voices" for expressive, explanatory, or persuasive writing. Reading, writing, and editing assignments focus on the enduring qualities of forceful, readable, and emphatic style: clarity, conciseness, fluency, exactness, and engaging tone, among a wide array of syntactic and semantic elements that help make writing make a difference.

ENL 620 three credits
Writing Computer-User Documents

The proliferation of computers has led to the rampant growth of documentation requirements and an increased demand for writers capable of addressing various audiences with clarity and precision. In this course, we will concentrate on documentation standards and guidelines, documentation management and control and document preparation. Among the topics covered will be documentation requirements in the design, development, and life cycle of a system; forms management and design considerations; software documentation requirements, and the techniques used to prepare effective and efficient documents.

ENL 621 three credits
Editing, Layout, and Document Design

Students will learn about the in-house publishing process, with an emphasis on publications management and automation. Students will coordinate all facets of manuscript production, from automated text editing (or word processing) to automated typesetting and computer graphics. They will work with manuscripts at all production stages: copy editing, galley and page-proof, art development, and indexing.

ENL 630 three credits
Teaching Writing: Theory and Practice

Our goal is to analyze contemporary composing and rhetorical theories, determine their significance for teaching writing, and ultimately, to develop strategies for teaching writing. Topics range from methods for evaluating papers to collaborative learning, to cognitive processes and ways of integrating reading and writing.

ENL 631 three credits
Teaching Technical and Professional Writing

This practicum includes an eclectic survey of theories, tests, and strategies, the supervised teaching of an undergraduate course, and weekly colloquia to assess classroom practice and to share approaches. In addition, each student will complete a related research project (e.g., a comparative analysis of leading textbooks, course structures, or writing needs in local businesses).

ENL 640 three credits
Advanced Principles in Journalism and Article Writing

This course examines the limits, techniques, and constraints of investigative journalism. Emphasis will be placed on in-depth reporting in difficult settings, handling of controversial material, and story construction of multi-source, highly complex, highly researched articles.

ENL 641 three credits
Technical and Scientific Journalism

This course examines the problems, principles, and techniques of writing effectively in science and technology for both the general public and specialized audiences. Emphasis will be on evaluating technical language and jargon; understanding the needs of various audiences; learning research techniques; and developing interview and validation strategies that help writers clarify trends, theories, patterns, and perspectives. Students will be expected to write articles about newsworthy events for scientific and technical journals.

ENL 642 three credits
Public Relations Techniques

This course offers students a comprehensive understanding of the purposes of public relations, its principles, and the techniques by which its goals are accomplished. The course covers the full range of public relations strategies used by individuals, agencies, corporations, and governments, including press releases, audio-visual presentations, public speaking, paid advertising, lobbying, fostering employee relations, and promoting citizen involvement.

ENL 645 three credits
Visual Display, Formatting, and Desktop Publishing

This course is designed to expose students to the principles of visual display in working documents so that, as editors and writers, they can work effectively with photographers and artists in the creation of finished texts. Students will explore the use of photos, headlines, graphics, and visual elements as they can be used to enhance the meaning and effectiveness of written text. Students will learn to plan visual elements in the early stages of story, computer program, or document conception. They will explore basic principles of visual design and experience the limitations and problems inherent in generating visual elements. Students will receive practical experience in dummying and layout, and will oversee several projects incorporating visual elements into written works. The purpose of the course is to train writers and editors to be sensitive and effective publishers.

ENL 650 three credits
Topics in Professional Writing

An in-depth writing workshop focusing on various topics in professional writing. The type of writing taught during a particular semester will vary, depending on student interests, faculty research and publication, or the strengths of visiting writers. Possible topics include approaches to writing novels, short stories, screenplays, or poetry, editorial, feature, how-to environmental, and other forms of journalistic writing; free-lance writing; and special topics in technical and professional writing.

ENL 660 three credits
Graduate Workshop in Creative Writing

Fiction, poetry, playwriting, or the essay will be addressed, under the guidance of a published author. Students must demonstrate a talent for performance in one or more of the above genres—either by published works or by a reasonable body of manuscripts completed or in progress. As a class, we will discuss prototypical works, techniques, and the manuscripts of colleagues. A finished piece of work will be required of each student at approximately biweekly intervals.

ENL 661 three credits
Graduate Workshop in Creative Writing

A continuation of ENL 660.

ENL 662 three credits
Graduate Workshop in Literary Nonfiction

This course offers students a comprehensive understanding of the principles and techniques involved in writing literary nonfiction. Students will explore how techniques of fiction are applied to experience and reality to create this modern form of American literature.

ENL 665 three credits
Practicum in Scriptwriting

Students will write an original theatrical-length script or one adapted from another media.

ENL 666 three credits
Practicum in Writing for Television: The Pilot Script and the Series

Practicum in writing the television series including the creation of a pilot script and related installments. Students may work in fiction or in such non-fictional modes as training videos, documentary features, and documentary serials.

ENL 667 three credits
Documentary Writing

Documentary Writing enables students to develop and write documentary scripts for film and television, training and industrial films for business, and films for educational organizations, as well as scripts for radio. Technical, artistic, and ethical issues of visual and oral representation will be addressed through practical writing projects.

ENL 690 three credits
Composition Theory

Explores the history and principles of the relatively new academic discipline of composition studies. The course asks questions: What is the nature of composition studies? What is the history of the discipline? What is the relationship between rhetoric and composition, between theory and practice? What bibliographical resources aid the work of composition specialists? What role do departmental and institutional politics play in shaping/influencing the teaching of writing? How has pedagogy been influenced by recent developments in rhetorical criticism, cultural studies, feminism, literary theory, language philosophy, and technology? In addition, the course will consider the future of composition studies within the university in areas of instruction such as basic writing. English as a second, writing across the curriculum, and hypermedia.

The purpose of the internship is to expose students to writing in professional environments. In consultation with their faculty advisor and course instructor, students will select a field site where they will work for a semester as writers, editors–or as assistants in those capacities. In special cases, students will conduct research into the writing practices at specific sites. Students will be responsible for negotiating entry into the setting and for formulating a work proposal agreeable to both their on-site supervisor and the course instructor. A contract will be drawn up describing the work, the hours, the skills the student hopes to enhance, and the student's goals. Interns will meet weekly to discuss their projects, and, in addition to the work produced, will be expected to write a final report reflecting on their experience. Students may participate in no more than one internship per semester for a maximum of three credit hours, and no more than six credit hours of internship work can be counted toward graduation.

Within these general guidelines, students may register for internships in the following special areas:

ENL 701-702 three credits
Internship in Technical Writing

Students will work as writers, editors, or special consultants for organizations or companies producing technical documents, computer programs, or technical memos and reports. Emphasis will be placed on the quality of the student's work and on the problems of collaborating with specialists to produce work for a range of audiences.

ENL 703-704 three credits
Internship in Journalism

Students will work as writers, editors, or assistants for newspapers, magazines, radio or TV stations, news organizations, or may work in a news writing or editing capacity in public relations. Emphasis will be placed on the quality of published work produced by the student.

ENL 705-706 three credits
Internship in Creative Writing, Scriptwriting, or Translation

Students will work as writers, editors, or free-lancers for publications, publishers, agents, or under the supervision of the course instructor who will serve as project reviewer. Emphasis will be placed on the quality of writing and the process of marketing manuscripts, scripts, and other creative works.

ENL 707-708 three credits
Internship in Business and Professional Writing

Students will work as writers, editors, assistants, or special consultants in business, industry, or nonprofit organizations. Writing might include public relations pieces, such as press releases, advertising copy or unsolicited sales letters, and house organs; background papers for managers or executives; and memos, letters, and short reports. Emphasis will be placed on the quality of work produced by the student at the field sites.

Foreign Literature and Languages

The Department offers basic courses in six languages: French, German, Italian, Portuguese, Russian, and Spanish, in addition to courses in Latin, linguistics, and language methodology. Students who have demonstrated aptitude and performance in languages may elect a major in French, Portuguese, and Spanish. Minors are also offered in these languages, and in German and Russian.

In conjunction with the Boivin Center for French Language and Culture and the College of Business and Industry, the Department offers a Certificate in International Business/French.

Faculty and Fields of Interest

Christina Makara Biron Spanish literature and language, foreign language education

Joseph A. Bronstad 20th-century German literature and culture

Lewis Kamm 19th- and 20th-century French literature

Deborah Lee 20th-century French literature

Giulio Massano (chairperson) Spanish and Italian literature of the Middle Ages, Renaissance and Baroque

Maria Moreira-Ellen 20th-century Brazilian literature, Latin American culture

Frank Sousa Modern Portuguese literature

John H. Twomey 20th-century Spanish and Latin American literature

Melvin B. Yoken 19th- and 20th-century French literature

Majors in French, Portuguese, and Spanish

BA degree

Requirements

A student who wishes to specialize in foreign literature and languages—French, German*, Portuguese or Spanish—must complete a minimum of 30 credits in 300- and 400-level courses in the major field. Twenty-seven of these credits must be taken in courses taught in the language of the selected major. In French, Portuguese, and Spanish, courses 301 and 302 and six credits in "survey of literature" are required. The remaining hours will be chosen at the discretion of the student with the approval of the advisor. To qualify for any language course at the 300 level, a student must complete courses through 202, or their equivalent in that language. Students wishing to take 400-level courses must normally obtain the consent of the instructor teaching the 400-level course and have earned at least 12 credits in their major at UMass Dartmouth. A grade point average of 2.0 in the chosen language must be attained for graduation.

The Department recommends that all students specializing in foreign literature and languages, especially those planning to teach or pursue a higher degree, take at least 18 hours in a second foreign language.

*Freshman admission to the German major is suspended as of Fall 1993.

Minors in French, German, Portuguese, Russian, and Spanish

The minors in French, German, Portuguese, Russian and Spanish may be elected by students majoring in any other field.

Any degree candidate who has between 54 and 84 credits, with a minimum cumulative grade point average of 2.0 and a 2.5 grade point average in his or her major, may request admission to a minor in the Department of Foreign Literature and Languages. Before being admitted to the Foreign Literature and Languages minor, students must obtain permission from the Department Chairperson.

Requirements

Eighteen credits in the one language of the minor are required, and must include:

Both courses 301, 302 (or equivalent) 6 credits in 300 or 400-level courses beyond 301-302.

In order to be designated as a student who has graduated with a minor in a foreign language, the student must maintain a grade point average of 2.0 in the courses for the minor.

Practice Teaching

The Department of Foreign Literature and Languages permits students with a 3.0 cumulative average in their major to engage in the University's Teaching Intern Program. The Bureau of Teacher Preparation, Certification, and Placement requires students seeking middle and secondary certification to take LIN 322 Introduction to Second Language Acquisition, LIN 326 Discourse Perspectives in Foreign Language Education, and MLG 324 Concepts of Foreign Language Teaching, in addition to the required courses offered by the Education Department. Each semester, a list of names of qualified students will be submitted to the Department of Education. Students should see Professor Christina Makara Biron for advising.

Foreign Literature and Languages Honors Program

Senior majors in the Foreign Literature and Languages Department who have a cumulative average of 3.5 can choose to do honors work. The student must take a three- or six-credit independent study on a specific topic. This course will have an extensive reading list, and the student must present a substantial term paper which will be evaluated by a faculty committee. The term paper must earn at least a grade of A-.

French Courses

FRN 101 three credits
Elementary French I

Essentials of aural-oral, reading and writing usage, with intensive drilling in pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

FRN 102 three credits
Elementary French II

Continuation of FRN 101.

FRN 201 three credits
Intermediate French I
Prerequisite: FRN 102 or equivalent

Review of grammar with composition and aural-oral practice. Introduction to French culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week.

FRN 202 three credits
Intermediate French II

Continuation of FRN 201.

FRN 203 three credits
French Literature in Translation I
Prerequisite: ENL 102

Outstanding works of French literature in translation. Readings, lectures, and discussions in English.

FRN 204 three credits
French Literature in Translation II
Prerequisite: ENL 102

Continuation of French 203.

FRN 301 three credits
French Composition and Conversation I
Prerequisite: FRN 202 or equivalent

Oral and written reports. Practical application of grammar, vocabulary-building and introduction to style.

FRN 302 three credits
French Composition and Conversation II

Continuation of FRN 301.

FRN 312 three credits
Culture and Civilization of France
Prerequisite: FRN 202 or equivalent

Introduction to the cultural development of the French people throughout history. Lectures, class discussions, written and oral reports on the significant aspects of French literary, social, and artistic life.

FRN 331 three credits
Masterpieces of French Literature I
Prerequisite: FRN 302 or equivalent

The representative authors, poets and dramatists of French literature from *La Chanson de Roland* through the age of Enlightenment will be read and discussed.

FRN 332 three credits
Masterpieces of French Literature II
Prerequisite: FRN 302 or equivalent

The main literary movements from the nineteenth century to the contemporary period will be analyzed. Discussion of literary genres and important aspects of French literary history.

FRN 337 three credits
Commercial French
Prerequisite: FRN 202 or equivalent

An introduction to business in France and Quebec. Topics include business vocabulary, letter writing, transportation, insurance, accounting, labor relations, economic geography.

FRN 411 three credits
La Poésie Française
Prerequisite: FRN 302 or consent of instructor

Elements of French poetry. An examination of versification, melody, rhyme, rhythm harmony, imagery, metaphor, and symbol in representative French poets from the Middle Ages to the present. The course may focus on selected topics and poets. Different instructors may emphasize different periods and works, but at least two centuries will be covered.

FRN 413 three credits
Le Théâtre Française
Prerequisite: FRN 302 or consent of instructor

Elements of French theatre. An examination of character, time, place, action, etc. in plays representative of French theatre and its evolution. The course may focus on selected playwrights, plays, topics, etc. Different instructors may emphasize different periods and works, but at least two centuries will be covered.

FRN 415 three credits
La Littérature Québécoise
Prerequisite: FRN 302 or consent of instructor

Aspects of Quebec Literature: The Novel, Theatre, and Poetry. Emphasis will be placed on the distinctive nature of the Quebec literary mind. The course may focus on a single genre or on representative authors.

FRN 417 three credits
Le Roman Français I
Prerequisite: FRN 302 or consent of instructor

Elements of the French novel. An examination of character, vision, and development of the novel focusing on representative works and authors. Different instructors may emphasize different periods and works, but at least two centuries will be covered.

FRN 418 three credits
Le Roman Français II
Prerequisite: FRN 302 or consent of instructor

Similar to FRN 417, but different authors and works will be studied. Thus offering a more complete picture of the scope and range of the French novel.

FRN 420 three credits
Major Currents of French Thought
Prerequisite: FRN 302 or consent of instructor

Examination of influential thinkers from the Renaissance to the present. Possible topics include: Montaigne, Descarte, the Philosophes, Rousseau, Existentialism, Structuralism, Barthes, Lacan and his feminist critics, Derrida, and so forth.

FRN 481 three credits
Seminar in French
Prerequisite: FRN 302 or consent of instructor

An intensive study of a specific topic, such as aural French comprehension, or a particular author or a literary movement. The topic will vary from year to year so that the course may be repeated for credit.

FRN 482 three credits
Seminar in French
Prerequisite: FRN 302 or consent of instructor

Similar to FRN 481 but with a different topic, including history of the French language.

FRN 495 three credits
Independent Study
Prerequisite: Senior standing

Intensive study or research on a special topic under the direction of a staff member. Hours to be arranged.

FRN 496 three credits
Directed Study

FRN 900 three credits
Contract Learning

GER 101 three credits
Elementary German I

Introductory study of the language and its grammatical structure. Development of the skills of understanding, speaking, reading, and writing. Three hours of recitation and one hour of laboratory per week.

GER 102 three credits
Elementary German II

Continuation of GER 101.

GER 103 three credits
Conversational German I

This course is parallel to GER 101, but the emphasis is on learning to understand and speak in everyday situations, particularly in connection with travel and life in Germany today. No previous knowledge of German required.

GER 104 three credits
Conversational German II

Continuation of GER 103 (parallel to GER 102).

GER 201 three credits
Intermediate German I
Prerequisite: GER 102 or equivalent

Review of grammar. Development of facility in composition and conversation. Intensive and extensive reading in texts of cultural and literary value. Three hours of recitation and one hour of laboratory per week.

GER 202 three credits
Intermediate German II

Continuation of GER 201.

GER 301 three credits
German Composition and Conversation
Prerequisite: GER 202 or equivalent

Extensive oral and written application of German on the advanced level. The course will be conducted in German with emphasis on idiomatic use of the language and finer points of grammar to give the student greater confidence and accuracy in expression.

GER 311 three credits
German Culture and Civilization
Prerequisite: GER 202 or equivalent

Through reports, readings, and discussions in German, the student will learn about life in Germany, Austria, and Switzerland, both on the contemporary scene and from an historical perspective.

GER 326 three credits
History of the German Language

The historical development of German from its Indo-European origins to the present, its vocabulary, forms, and syntax particularly in their relationship to English. No previous knowledge of German required.

GER 335 three credits
German Poetry
Prerequisite: GER 202 or consent of instructor

A survey of German poetry from the ninth to the twentieth century, with analysis of changing form and content.

GER 357 three credits
German Novelle
Prerequisite: GER 202 or consent of instructor

The short prose form in its development during the nineteenth and twentieth centuries through a reading of representative authors.

GER 366 three credits
Contemporary German Literature
Prerequisite: GER 202 or equivalent

Recent developments in German literature in the Federal Republic of Germany and the German Democratic Republic, as well as in Austria and Switzerland. Material will be presented through reports, readings, and discussions in German.

GER 374 three credits
German Drama
Prerequisite: GER 202 or consent of instructor

German drama from its beginnings to the present day through a reading of representative plays.

GER 481 three credits
Seminar in German
Prerequisite: A 300-level course in German or consent of instructor

An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit.

GER 495 two to four credits
Independent Study
Prerequisite: Senior standing

Individual study or research on a special topic under the direction of a staff member. Offered only on demand.

GER 496 three credits
Directed Study

GER 900
Contract Learning

Italian Courses

ITA 101 three credits
Elementary Italian I

Essentials of aural-oral, reading and writing usage with intensive drilling in pronunciation, intonation, and grammar. Three recitations and one hour of laboratory per week.

ITA 102 three credits
Elementary Italian II

Continuation of ITA 101.

ITA 201 three credits
Intermediate Italian I
Prerequisite: ITA 102 or equivalent

Review of grammar with composition and aural-oral practice. Extensive readings of cultural and literary value. Emphasis on practical application of grammar in conversations. Three recitations a week.

ITA 202 three credits
Intermediate Italian II

Continuation of ITA 201.

ITA 495
Independent Study

ITA 496 three credits
Directed Study

Latin Courses

LAT 101 three credits
Introductory Latin I

The fundamentals of the Latin language with selected readings, designed especially for those majoring in English or foreign languages. The course will seek to develop a measure of oral ability in the language, as well as knowledge of the phonemics, morphology, and syntax of the declensional and conjugational systems.

LAT 102 three credits
Introductory Latin II

Continuation of LAT 101.

LAT 201 three credits
Intermediate Latin I
Prerequisite: LAT 102

A third semester of Latin, designed to develop skill in the reading of representative authors of the Golden Age (Catullus, Cicero, Nepos, Horace, Martial, et al.), with additional selections from the Patristic Period (Vulgate) and from the Medieval Period (Isidore of Seville, the Venerable Bede).

LAT 202 three credits
Intermediate Latin II
Prerequisite: LAT 201

A fourth semester course paralleling LAT 201 but with more extensive selections, from Nepos, Horace and Phaedrus (Augustan Period); from the Epistolae of Pliny the Younger, mirroring Roman life, and from the Saturae of Martial; supplemented by other materials where feasible. While one purpose of LAT 201-202 will remain the building of ability to translate, the endeavor will be made to foster reading of the Latin texts directly in the original for personal enrichment and satisfaction.

LAT 495 three credits
Independent Study

LAT 496 three credits
Directed Study

Teaching Methods Courses

MLG 211 three credits
Textual Analysis

Literary explication. Intensive readings with analysis of relationships between language and thought and form and content. Training in the writing of analytical critique. Course taught in English. Applied to all Foreign Literature and Languages majors.

MLG 324 three credits
Concepts of Foreign Language Teaching

An analysis of methods and techniques in the teaching and learning of foreign languages. Examination of innovations in foreign language education. A study of the problems of language, subject matter, and materials inherent in bilingual education. Individual and group projects with application of theory to practice.

LIN 322 three credits
Introduction to Second Language Acquisition

Factors that affect the production and comprehension of foreign language acquisition, with particular emphasis on acquisition of the Romance Languages. Topics studied include comparisons of second language acquisition with first language acquisition, affective factors, interlanguage, learner strategies, sociocultural factors, and evaluation of proficiency.

LIN 326 three credits
Discourse Perspectives in Foreign Language Education

Factors that affect the understanding and production of foreign language texts. An analysis of how meaning is socially and cognitively constructed. Topics studied include the negotiation of meaning, oral vs. written texts, schema theory, ethnography of communication, genre analysis, content language instruction, and evaluation of discourse production and comprehension. An examination of methods and techniques that apply discourse theory to the foreign language classroom.

LIN 495 three credits
Independent Study

LIN 496 three credits
Directed Study

POR 101 three credits
Elementary Portuguese I
3 hours lecture, 1 hour laboratory

Essentials of aural-oral, reading and writing usage with intensive drilling in pronunciation, intonation, and grammar.

POR 102 three credits
Elementary Portuguese II

Continuation of POR 101.

POR 105 three credits
Conversational Portuguese I

An introductory course in the development of fluency in colloquial situations, particularly those relating to business, professional work, or education. Some attention to grammar. Relevant readings of cultural value.

POR 106 three credits
Conversational Portuguese II

Continuation of POR 105.

POR 201 three credits
Intermediate Portuguese I
Prerequisite: POR 102 or equivalent

Review of grammar with composition and aural-oral practice. Introduction to Portuguese and Brazilian culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week.

POR 202 three credits
Intermediate Portuguese II

Continuation of POR 201.

POR 204 three credits
Brazilian Literature in Translation
Prerequisite: ENL 102

Outstanding works of Brazilian literature of the nineteenth and twentieth centuries. Readings, lectures, and discussions in English.

POR 205 three credits
Intermediate Conversational Portuguese I
Prerequisite: A course in elementary Portuguese or consent of instructor

Further development of fluency to deal with native speakers on everyday terms. More involved grammar. Relevant readings of cultural value.

POR 206 three credits
Intermediate Conversational Portuguese II

Continuation of POR 205.

POR 301 three credits
Portuguese Composition and Conversation I
Prerequisite: POR 202 or equivalent

Oral and written reports on everyday events. Emphasis placed on correct syntax and style.

POR 302 three credits
Portuguese Composition and Conversation II

Continuation of POR 301.

POR 312 three credits
Culture and Civilization of Portugal
Prerequisite: POR 301 or equivalent

Introduction to the cultural development of the Portuguese people throughout history. Lectures, class discussions, written and oral reports on significant aspects of Portuguese literary, social, and artistic life.

POR 314 three credits
Culture and Civilization of Brazil
Prerequisite: POR 301 or equivalent

The development of Brazil and its people from the colonial period to the present. Lectures, class discussions, written and oral reports on the significant aspects of Brazilian literary, social, and artistic life.

POR 325 three credits
Advanced Portuguese Grammar and Syntax
Prerequisite: POR 202 or equivalent

A study of Portuguese grammar and its usage with extensive drills.

POR 331 three credits
Masterpieces of Portuguese Literature I
Prerequisite: POR 302 or equivalent

Representative works of outstanding Portuguese authors, poets and dramatists from the Middle Ages to the classical period.

POR 332 three credits
Masterpieces of Portuguese Literature II
Prerequisite: POR 331 or equivalent

Selected works starting with the "Arcadia" movement and continuing to the contemporary period.

POR 333 three credits
Masterpieces of Brazilian Literature I
Prerequisite: POR 302 or equivalent

The major literary works from the colonial period to Romanticism.

POR 334 three credits
Masterpieces of Brazilian Literature II
Prerequisite: POR 302 or equivalent

The outstanding literary works from Realism to Modernism.

POR 337 three credits
Business Communication: English-Portuguese I

A study of the fundamentals of business correspondence in Portuguese and the translation of business-related subjects from English to Portuguese and vice-versa. Readings on the economy and finances of Brazil and Portugal will also be emphasized.

POR 338 three credits
Business Communication: English-Portuguese II

Continuation of POR 337

POR 445 three credits
The Classical Period
Prerequisites: POR 331, 332; or consent of instructor

The literary works of the great national period of Portugal. Emphasis on the classical theatre and the Lusiads.

POR 446 three credits
The Classical Period Prose and Poetry
Prerequisites: POR 331, 332; or consent of instructor

The literary works of the great national period of Portugal. Emphasis on poetry, the literature of discovery, and prose.

POR 455 three credits
Literature of the 19th and 20th Century I
Prerequisites: POR 331, 332; or consent of instructor

A study of Romanticism and Realism. The "Generation of Coimbra" is discussed, but Eça de Queiróz will be studied in POR 456.

POR 456 three credits
Literature of the 19th and 20th Century II
Prerequisites: POR 331, 332; or consent of instructor

A study of Realism with special emphasis on Eça de Queiróz and the contemporary movements.

POR 481 three credits
Seminar in Portuguese
Prerequisites: POR 331, 332; or 333, 334; and consent of instructor

An intensive study of a specific topic, such as a particular author or literary movement. The topic will vary from year to year so that the course may be repeated with credit.

POR 482 three credits
Seminar in Portuguese
Prerequisite: POR 331, 332 or 333, 334 and consent of instructor

Similar to POR 481 but with a different topic.

POR 495 three credits
Independent Study
Intensive study or research on a specific topic in Portuguese or Brazilian studies, under the direction of a staff member.

POR 496 three credits
Directed Study

POR 900 three credits
Contract Learning

RUS 101 four credits
Elementary Russian I

A study of the fundamentals of Russian grammar together with drills in pronunciation and reading. Conversation in Russian is introduced from the beginning. Various outside readings in Russian will introduce the student to Russian and Soviet culture. Four recitations and one hour of laboratory per week.

RUS 102 four credits
Elementary Russian II

Continuation of RUS 101.

RUS 201 three credits
Intermediate Russian I
Prerequisite: RUS 102 or equivalent

This course includes a review of basic grammar and a study of more advanced syntax. Readings will serve as the basis for continued work in conversation and composition and for the study of Russian and Soviet culture. Three recitations and one hour of laboratory per week.

RUS 202 three credits
Intermediate Russian II

Continuation of RUS 201.

RUS 203 three credits
Masterpieces of Russian Literature in Translation I
Prerequisite: ENL 102

A survey of Russian literature from its beginning to 1870. Representative works of major authors will be read and discussed. Conducted in English. Three recitations per week.

RUS 204 three credits
Masterpieces of Russian Literature in Translation II
Prerequisite: ENL 102

A survey of Russian literature from 1870 to the present. Representative works of major authors will be read and discussed. Conducted in English. Three recitations per week.

RUS 301 three credits
Russian Conversation and Composition
Prerequisite: RUS 202 or equivalent

Oral and written reports. Practical application of grammar, vocabulary building and introduction to style. Three recitations per week.

RUS 302 three credits
Russian Conversation and Composition

Continuation of RUS 301.

RUS 303 three credits
Russian Expository Prose I
Prerequisite: RUS 202

Readings in the humanities and social sciences from Soviet newspapers and journals. Special attention will be paid to journalistic syntax and acquisition of a core vocabulary.

RUS 304 three credits
Russian Expository Prose II

Continuation of RUS 303.

RUS 495
Independent Study
Prerequisite: senior standing

Intensive study or research on a special topic under the direction of a staff member. Hours and credit to be arranged.

RUS 496 three credits
Directed Study

RUS 900
Contract Learning

SPA 101 three credits
Elementary Spanish I

Essentials of aural-oral, reading and writing with intensive drilling on pronunciation, intonation and grammar. Three recitations and one hour of laboratory per week.

SPA 102 three credits
Elementary Spanish II

Continuation of SPA 101.

SPA 201 three credits
Intermediate Spanish I
Prerequisite: SPA 102 or equivalent

Review of grammar with composition and aural-oral practice. Introduction to Hispanic Culture and civilization through intensive and extensive reading. Three recitations and one hour of laboratory per week.

SPA 202 three credits
Intermediate Spanish II

Continuation of SPA 201.

SPA 207 three credits
Spanish for Law Enforcement Personnel
Prerequisite: SPA 102 or equivalent or permission of the instructor

A course designed principally for majors and minors in criminology. In this course the emphasis will be focused on helping law enforcement personnel to deal with the Spanish speaking community. Individual case studies will be examined in depth in order to facilitate the total involvement of law enforcement personnel in their work.

SPA 208 three credits
Spanish for Law Enforcement Personnel II

Continuation of SPA 208.

SPA 301 three credits
Composition and Conversation I
Prerequisite: SPA 202 or equivalent

Oral and written reports. Practical application of grammar, vocabulary-building, and introduction to style.

SPA 302 three credits
Composition and Conversation II
Prerequisite: SPA 301 or equivalent, or permission of instructor

Continuation of SPA 301. Discussion and oral reports based on modern literary works, expository or journalistic prose from Spain and Latin America. Vocabulary-building and frequent compositions.

SPA 304 three credits
Advanced Composition and Conversation
Prerequisite: SPA 302 or consent of instructor

Abundant discussion and oral reports on current themes in the Hispanic world. Frequent compositions on topics found in Spanish, and Spanish-American periodicals and newspapers.

SPA 305 three credits
Business Spanish
Prerequisite: SPA 202

Spanish for correspondence, investments, law, transportation, banking, administration, personnel, publicity and promotion. Abundant practice in translation and vocabulary. Readings and selections from different fields for comprehension.

SPA 312 three credits
Culture and Civilization of Spain
Prerequisite: SPA 302 or consent of instructor

Introduction to the cultural development of the Spanish people throughout their history. Lectures, class discussions, and written and oral reports convey significant aspects of Spanish literary, social and artistic life.

SPA 314 three credits
Culture and Civilization of Latin America
Prerequisite: SPA 301 or consent of instructor

Lectures, class discussions, written and oral reports on the significant aspects of Latin American literary, social, and artistic development from the period of discovery and colonization to present times.

SPA 325 three credits
Advanced Spanish Grammar and Syntax
Prerequisite: SPA 202

A systematic study of Spanish grammar with extensive practice in composition. Recommended for those planning to teach.

SPA 331 three credits
Masterpieces of Spanish Literature I
Prerequisite: SPA 302 or consent of instructor

The representative authors, poets and dramatists of Spanish literature from El Cantar de Mio Cid in the Middle Ages to Quevedo in the Baroque period.

SPA 332 three credits
Masterpieces of Spanish Literature II
Prerequisite: SPA 302 or consent of instructor

Selected plays, novels and poetry from the eighteenth century to the contemporary period.

SPA 333 three credits
Representative Authors of Spanish American Literature I
Prerequisite: SPA 302 or consent of instructor

The main writers from the period of conquest and discovery in the New World to the development of Gaucho literature in the nineteenth century.

SPA 334 three credits
Representative Authors of Spanish American Literature II
Prerequisite: SPA 302 or consent of instructor

The major works from the pre-Modernist period in the nineteenth century to the contemporary period.

SPA 445 three credits
Spanish Poetry and Drama of the Golden Age
Prerequisites: SPA 331, 332 or consent of instructor

The poetry of the Renaissance and Baroque periods together with the selected plays of Lope de Vega, Calderon de la Barca and Tirso de Molina.

SPA 446 three credits
Spanish Prose of the Golden Age
Prerequisite: SPA 331 or consent of instructor

The main authors of the sixteenth and seventeenth centuries with emphasis on the life and major works of Miguel de Cervantes.

SPA 455 three credits
Literature of the Nineteenth Century
Prerequisites: SPA 331, 332; or consent of instructor.

The main literary movements, romanticism, realism and naturalism are studied together with the representative works of outstanding authors, poets, and dramatists.

SPA 456 three credits
Contemporary Spanish Literature
Prerequisites: SPA 331, 332; or consent of instructor

The leading writers of each literary form from the generation of '98 to the present.

SPA 481 three credits
Seminar in Spanish
Prerequisites: SPA 331, 332; or SPA 333, 334; or consent of instructor

An intensive study of a specific topic or topics, such as a particular author, genre, or literary movement. The topic or topics will vary from year to year so that the course may be repeated with credit.

SPA 482 three credits
Seminar in Spanish
Prerequisites: SPA 331, 332; or SPA 333, 334; or consent of instructor

Similar to SPA 481 but with a different topic.

SPA 495 three credits
Independent Study
Prerequisite: Senior standing

Intensive study or research on a special topic in Spanish or Spanish American literature under the direction of a faculty member. Hours to be arranged.

SPA 496 three credits
Directed Study

SPA 900 three credits
Contract Learning

History

History students are offered study in United States, European, Russian, Latin American, African, and Asian history. Students can expect to participate in a variety of academic activities including lecture and discussion courses and sem-inars. The history curriculum acquaints students with the various methods of historical study, provides them with a broad understanding of the major themes of history, allows them to con-centrate on topical courses and themes of their choosing, and offers opportunities to propose and implement their own research projects.

As a broadly based Liberal Arts degree, the major emphasizes the development of critical thinking and communication skills as well as the acquisition of histor-ical perspective. Our graduates prepare themselves for a wide variety of positions in government, education, and business. A B.A. in History can also lead to grad-uate work in a variety of fields and serve as a sound foundation for law school.

Students with a GPA of 3.2 are eligible for nomination to the University's Alpha Eta Theta Chapter of the International History Honor Society, Phi Alpha Theta.

Faculty and Fields of Interest

Suzann Buckley (dean of the college) European and Canadian women's history, Canada

Martin J. Butler American economic, maritime, local, oral history

Ann T. Carey Germany, modern Europe
(on leave, Executive Assistant to the Chancellor)

Linsun Cheng Asian history

Frederick V. Gifun Latin America, Portuguese and Brazilian Studies, European overseas expansion, comparative religion

Kevin J. Hargreaves France, European intellectual history, Canada

James A. Hijiya early America, recent U. S., Central America

Gerard M. Koot (chairperson) modern Britain, modern Europe, European economic and social history

Robert Michael modern Europe, holocaust studies

Betty L. Mitchell nineteenth-century United States, Women's history

Geraldine M. Phipps Russia, Eastern Europe

M. C. Rosenfield Britain, medieval Europe

Joseph N. Scionti, Jr. Renaissance and Reformation, Italy

Benjamin F. Taggie (provost) medieval studies

Gloria Waite African, African-American history

John M. Werly 20th century U.S., urban, American religion, nativism

History Major
BA degree

All history majors will be required to take 36 credits in history as indicated in requirements below. Freshmen will normally not take courses above the 100 or 200 level. It is expected that each history major will consult regularly with his or her class advisor in formulating a program of study that will help to fulfill his or her educational and career goals.

Requirements

Credits		
HST 101	History of Western Civilization I and	6
HST 102	History of Western Civilization II	
OR		
HST 103	World Civilizations I and	
HST 104	World Civilizations II	

30 credit-hours of history courses, to be divided in the following manner:

Six credits in U.S. History (above the 100 level)	6
Six credits in European History (above the 100 level)	6
Six credits in "other" history (e.g., Russia, Latin America, Asia, Near East, Africa, Ancient)	6
Three credits in a history seminar	3
Nine credits of history electives	9
Total	**36**

No more than a total of 12 credits may be taken at the 100 level.

History Honors Program

The department offers an Honors Program for senior history majors with a 3.2 cumulative average. In this program students write a research paper under the direction of a faculty member of their choice. For details of this program, students should consult their advisors.

Students with a GPA of 3.2 are eligible for nomination to the university's Alpha Eta Theta Chapter of the International History Honor Society, Phi Alpha Theta.

History Minor

Any degree candidate who has at least 54 credits with a cumulative grade point average of 2.0 and at least 2.5 grade point average in his or her major may request admission to the minor in history. This request must be approved by the Department Chairperson. Upon admission students will be assigned an advisor.

Requirements:
1.
18 credits in history as follows: a) At least 9 credits of 300-400 level courses; b) At least 3 credits in or a seminar; c) No more than 6 credits at the 100 level.
2.
A student who maintains a 2.0 average in his/her history courses (for the minor) will have the successful completion of a minor in history noted on his or her transcript.

HST 101 three credits
History of Western Civilization I

A survey of the growth of European civilization from ancient times to the end of the Middle Ages, including economic, social, political, and intellectual developments.

HST 102 three credits
History of Western Civilization II

A continuation of the study of European civilization from the end of the Middle Ages to the present, with emphasis on the origins and development of 20th-century societies and issues.

HST 103 three credits
World Civilizations I

Introduces students to historical method and perspective through comparative study of human societies and cultures. The concept of "civilization" is examined in varied contexts through comparisons of social, economic, and political institutions, as well as systems of thought and religion, from pre-history to around 1400.

HST 104 three credits
World Civilizations II

A continuation of the study of World Civilizations, from 1400 to the present.

HST 115 three credits
History of the United States I

A survey of political, social, economic, and diplomatic developments from colonial times to the Civil War. Continuity and change in domestic and foreign politics, and the role of individuals, movements, and institutions will be emphasized.

HST 116 three credits
History of the United States II

A continuation of the survey of American history, from the Civil War and Reconstruction to the present.

HST 160 three credits
Slavic Civilization

Survey of the cultural, political, and economic development of Slavic peoples of Eastern Europe and Russia.

HST 180 three credits
Asian Civilization

A survey of Asian culture, its origins in Chinese and Indian civilizations, and its subsequent development. Includes the historical, social, and economic development of such newly independent Asian countries as Indonesia, Malaysia, and Singapore.

HST 190 three credits
African Civilizations

An introduction to the culture, history, and civilizations of the African continent, with special emphasis on sub-Saharan Africa. This one-semester survey is designed to acquaint the student with the principal themes of African history and development from pre-historic to modern times.

HST 203 three credits
20th Century America I

An interpretive analysis of the major American domestic and foreign policy trends from 1900 to 1945: Progressive Era, World War I, Red Scare, Roaring Twenties, Depression, New Deal, World War II.

HST 204 three credits
20th Century America II

An interpretive analysis of the major American domestic and foreign policy trends from 1945 to the present: the Cold War, Fair Deal, McCarthyism, Eisenhower Years, New Frontier, Great Society, Vietnam, Counterculture, Nixon Years, the Me-Decade, the Reagan and Bush presidencies.

HST 205 three credits
African-American History I

A survey of the role of African-Americans in American life and culture from the colonial period to the 1890s.

HST 206 three credits
African-American History II

A continuation of the study of the role of African-Americans in American history, from the 1890s to the present.

HST 207 three credits
Women's History in the United States: Colonial to the Present

Survey of the history of women—black and white, native and immigrant, rich and poor—in the U.S. from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs. industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement.

HST 209 three credits
History of Labor in the United States

History of the American working class throughout the 19th and 20th centuries. The course will examine the experiences of both organized labor and the masses of unorganized workers, and highlight issues of race, class, gender, and ethnicity.

HST 212 three credits
The Case of Lizzie Borden
3 hours lecture

Using primary source documents such as newspapers, wills, city directories, the federal census, etc., students will study the fascinating case of Lizzie Borden of Fall River who was accused of the brutal axe murder of her father and stepmother. Students will develop their skills in historical methodology, and participation in class discussions is emphasized.

HST 213 three credits
World of the Old Testament

An historical, sociological, and philosophical study of the world of the Old Testament and its effect upon the development of both Christianity and Islam. Special emphasis is placed upon recent archaeological discoveries which shed light upon the interaction of ancient Israel with surrounding cultures and its place in the context of Middle Eastern civilization. Lecture and discussion are supplemented with slide presentations and the display of various artifacts that reflect the lifestyles of the Biblical period.

HST 214 three credits
The Post-Biblical World

An historical, sociological, and philosophical study of the post-Biblical world. Particular emphasis is placed upon both the origins of Christianity within the context of Jewish, Middle Eastern, and Roman history and the parallel development of Rabbinic Judaism. In addition to lecture and discussions, the class participates in a Seder Meal where the ritual practices of first-century Israel are recreated.

HST 222 three credits
History of Roman Civilization

A survey of Roman civilization from the origins of Rome to the age of Constantine.

HST 223 three credits
Medieval History

The transition of Europe during the period from the end of the Classical World to the Renaissance. Emphasis on political development, social and economic change, and the role of the Church.

HST 250 three credits
Historiography

Devoted to the study of history as a means to understanding human experience and development. Acquaints the student with source materials, research methods, and problems of interpretation.

HST 260 three credits
The History of the Jewish People

A survey of the social, political, and economic history of the Jewish people from the first century through the modern era. Special emphasis is placed upon Jewish-Christian and Jewish-Islamic relations and their effect upon anti-semitism, the Holocaust, and the growth and development of Zionism. The student becomes acquainted with the place of the Jewish people in the mainstream of western culture and with the problem of maintaining ethnic and religious identify in a basically hostile environment.

HST 270 three credits
Latin American Civilizations

A comprehensive survey of the pre-Colombian and European-initiated civilizations which developed in regions of the Western Hemisphere colonized by Spain and Portugal. Emphasis is on the independent nations of Latin America from the 1820's to the present. Issues include race and class economic development and dependency, and the legitimation of political authority.

HST 282 three credits
China and the Far East

Introduces the history and geography of China, Japan, and Korea. Emphasis on events since the establishment of relations with the West. The interrelations of the three principal Far Eastern states in modern times will be studied.

HST 283 three credits
Chinese Civilization and Culture

General Chinese history and civilization from ancient times to the present. Emphasis on China's cultural contributions at times of both unity and disunity, and upon the characteristics of cultural change and continuity.

HST 284 three credits
Japanese Civilization and Culture

A study of Japanese cultural and political development from ancient to modern times with emphasis on literature, religion and art.

HST 290 three credits
Modern Africa

Survey of Africa's modern history, beginning especially after 1800. It looks at the beginnings and expansions of European and African-American settlements there, the Zulu and Islamic Revolutions, the conquest and colonization of Africa, and post-colonial developments.

HST 300 three credits
Topics in American History

A critical analysis of selected topics or issues in American history which are not otherwise offered in the standard catalogue courses.

HST 301 three credits
American Colonial History
Prerequisite: HST 115 or equivalent

A survey of the European colonies—especially the Spanish, English, and French—that eventually became part of the United States. Emphasis is on the confrontation of Native-American, European, and African peoples between 1492 and 1763.

HST 302 three credits
History of Religion in America I

A survey of the American religious experience from the seventeenth century to the Civil War, focusing on the redefinition of European religious turmoil in the colonies, Native-American religion, the Great Awakening, eighteenth century Civil millennialism, early growth of Catholicism and Judaism, the communitarian impulse, the explosion of evangelicalism, the impact on humanitarian reform and the shaping of the African-American religious alternatives.

HST 303 three credits
History of Religion in America II

A survey of the American religious experience from the Civil War to the present, focusing on the rise of Black churches, the impact of immigration and urban industrialism, the Ghost Dance religions, the Social Gospel, the Americanization of the Catholic Church, the Fundamentalist controversy, the impact of the Depression, Neo-Orthodoxy, the public religion of the Cold War, Pan-Indianism, twentieth century Judaism, the flowering of the cults, and the emergence of the electronic churches.

HST 304 three credits
History of North American Indians
Prerequisites: HST 115 or 116 or SOC/ANT 204 or permission of the instructor

Survey of the history of Indians of North America from their origins to the present. The course will examine a variety of native peoples in different regions of the continent, but mostly in what is now the United States, and the interaction between those native peoples and newcomers from Europe and Africa.

HST 305 three credits
The American Revolution and the Early Republic
Prerequisite: HST 115 or HST 301, or equivalent.

A study of the period from 1760s to the 1840s, concentrating on the development of political ideas and practices. Topics will include the Revolution, its origins and consequences; the Constitution; the rise of political parties; Jeffersonian and Jacksonian democracy; and territorial expansion.

HST 306 three credits
Civil War and Reconstruction

The antebellum, Civil War, and Reconstruction period of American history. This was a crucial era because so many fundamental issues were at stake: the place of African-Americans in American society; the destiny of Southern whites who tried to save their slave regime by seceding from the Union; and, the very survival of the United States as a nation.

HST 309 three credits
The History of Business in America

The development of American business and industry from the age of the colonial merchants, through the emergence of large scale industry in the nineteenth century into the modern era. It is primarily a business history course, focusing upon various industries and their development.

HST 310 three credits
America's Working Women

The experience of American working women—black and white, native and immigrant, organized and unorganized—from the colonial period to the present day. Because work is defined as productive labor, this course will examine

women as paid and unpaid workers—in the marketplace as well as in the home. Some of the areas of study will be women on the frontier, women in the mills and factories, labor union women, women in the professions, and the history and politics of housework.

HST 311 three credits
New England Maritime History

The relationship between New England and the sea. This course is more local in its approach than the American Maritime History course, and treats coastal and foreign trade of individual ports, whaling, fishing, and recreational industries. The decline of maritime New England is also treated, bringing the course into the most recent decades.

HST 312 three credits
American Maritime History

The development of the American merchant shipping industry since colonial times, and its role in American political, economic, and cultural history.

HST 313 three credits
Territorial Expansion of the United States

Examines the geographic, economic, social, and diplomatic issues involved in the settlement and development of the nation from the earliest European outposts to the passing of the frontier and the shift to overseas territories. In tracing the internal expansion of the United States, attention will be focused upon the exclusion of the native Americans from the mainstream of American life.

HST 314 three credits
History of Urban America

The emergence and development of the American city from the seventeenth century to the present, stressing the colonial town, cities and the new nation, immigration and the nativist reaction, slavery in the city, the completion of the urban network, the political machine, the urban reformer, the company town, the African-American migration to the city and the emergence of the metropolis.

HST 315 three credits
History of Massachusetts

The development of the state from its Colonial beginnings, through its transformation into an industrial society during the nineteenth century and its twentieth century adaptation to industrial and technological changes. This will not be simply a political history but will include geography, industrial history, social and transportational as well as immigration studies. There will be a discussion of the broadest variety of topics possible.

HST 317 three credits
History of European Women

A survey of women's history from the Renaissance to the present that critically examines the recent scholarship on this topic. The course will deal both with remarkable and ordinary women. Extensive use will be made of recent research on the history of the family and social demography as well as the more traditional areas of political, intellectual, and economic history. While emphasizing Western Europe, the course will include some material from the Americas and other areas.

HST 318 three credits
Women's Biography and Autobiography

Examines the lives of various women in the United States, Great Britain, and elsewhere both from a literary and historical perspective. Examples of women whose lives will be studied are Charlotte Bronte, Sarah and Angelina Grimke, and Charlotte Perkins Gilman.

HST 319 three credits
Early Modern Europe 1600 to 1815

A survey of post-Renaissance European civilization to the 19th century. Emphasis on the growth of the modern state system, the origins of capitalist economies, the scientific revolution and Enlightenment, and the political history of the principal monarchies.

HST 321 three credits
17th and 18th Century Europe: An Intellectual History

A survey of the intellectual history of Europe in the early modern period, including the growth of skepticism and the secularization of thought, the scientific revolution, the Enlightenment and the creation of a liberal climate of opinion, and the origins of modern political and economic theory.

HST 322 three credits
19th and 20th Century Europe: An Intellectual History

An examination of such intellectual currents as romanticism, liberalism and conservatism, nationalism, socialism and capitalism, and social Darwinism. Attention will be paid to the development and maturation of these currents in the 19th century, and their modification in the 20th century.

HST 323 three credits
Europe in the 19th Century

The major political, economic, intellectual and social developments in Europe from the defeat of Napoleon to the outbreak of World War I.

HST 324 three credits
Europe in the 20th Century

A study of the forces shaping contemporary Europe. Attention will be paid to World War I and its impact, the Versailles settlement, liberalism and democracy in the 20th century, the challenge of totalitarian systems, the Second World War, the Cold War, the West European unification, and disintegration of the Eastern Bloc.

HST 325 three credits
European Overseas Expansion 1500 to 1800

Examines European mastery of the oceans from the beginning of long-distance trade with Africa to colonization and empire-building in Asia and the Americas. Emphasis on the pioneering activities of Portugal and the competing interests of Spain, the Netherlands, France, and England.

HST 326 three credits
Modern Imperialism

An evaluation of both the theory and practice of European imperialism from 1800 to the present. In addition to a study of the major modern empires, the course will treat the phenomenon of decolonization and informal empire. Emphasis will be placed upon a comparison of the major explanations of European imperialism with its historical reality.

HST 327 three credits
Topics in the History of Ideas

Treats the history of ideas as an interdisciplinary approach to both intellectual history and the history of European society. Topics will vary with the instructor.

HST 329 three credits
European Economic History

An analysis of economic growth, economic policy and social change in Europe from the medieval period to the present, including a discussion of the contemporary European economy.

HST 331 three credits
The Renaissance

A survey of political, economic, and cultural developments in Europe from 1300 to 1500 with special emphasis on Italy.

HST 332 three credits
The Reformation

A survey of the background of the Reformation, the religious changes of the period, the role of reformers such as Luther, Calvin and Zwingli, and the effects of reform between 1500 and 1648.

HST 333 three credits
English History I

A survey of the history of England to the period of the Civil Wars and the Revolution of 1688, with attention to social, economic, political, and cultural changes.

HST 334 three credits
English History II

The history of England from the Revolution of 1688 to the present, tracing the change from an agricultural, rural society to a modern, industrial world power.

HST 335 three credits
19th Century Britain

An examination of the social, political, intellectual, and economic transformation of Britain in the 19th century. Emphasis on social analysis of Victorian England, the evolution of the 19th century Empire, and the impact of empire upon internal developments.

HST 336 three credits
20th Century Britain

A survey of British history from 1900 to the present. Emphasis will be placed upon a study of the welfare state, the impact of the World War, the end of empire, and contemporary English society.

HST 337 three credits
English Constitutional History
Prerequisites: HST 333, 334.

A survey of the legal and constitutional development of England from the Anglo-Saxon settlement to the Reform Bill of 1832. Attention to documents and other contemporary materials (in English). Recommended for pre-law students.

HST 339 three credits
Canada to 1867
3 hours lecture
Prerequisite: Sophomores and above; HST 102, or HST 115, or equivalent

Survey of Canadian history from European contact to the year of confederation. Lectures and readings integrate themes in the political, social, economic and military history of native, French, and British populations, with emphasis on the development of the early mari-times and Quebec.

HST 340 three credits
Canada Since 1867

Extending the survey of Canadian history from Confederation to the present, this course focuses on the political history of post-colonial Canada, with social, economic and cultural issues introduced to illuminate the problem of nation-building for a population divided by regional and ethnic differences. Special attention will be paid to Quebec and the Maritimes, native-Canadians, U.S. relations, and contemporary constitutional issues. HST 339 is recommended, but not required as a prerequisite.

HST 341 three credits
France to 1789

A survey of French history in the 17th and 18th centuries. Topics include the rise of the Bourbon monarchy, the reign of Louis XIV, the growth of religious and political dissent, the struggle for European hegemony and overseas empire, the cultural influence of France in the Enlightenment, and the crisis of the old regime.

HST 343 three credits
History of Greek Civilization

An introduction to the history of Greek civilization, from Minoan and Mycenaean times to the Hellenistic period. Emphasis will be on cultural and intellectual developments in their social and political contexts.

HST 347 three credits
History of Italy in the 19th Century

A detailed study of the Risorgimento, or movement for Italian unification. Attention will be given to economic and cultural life as well as political events.

HST 348 three credits
History of Italy in the 20th Century

An analysis of the rise and fall of Italian fascism, including a study of Italy's participation in both World Wars.

HST 351 three credits
History of Germany to 1786

A study of the development of the Germanic states from the founding of the First Reich in the 10th century to the death of Frederick the Great. Topics to be considered include: the development and nature of the medieval empire, the conflict with the Papacy; the Reformation; the Counter-Reformation; the spread of absolutism; the development of Prussia; and the role of the Hapsburgs in German affairs.

HST 352 three credits
History of Germany from 1786 to 1890

A study of Germany in the 19th century incorporating political, social, and intellectual history. Topics to be considered include: the effects of the French Revolution and Napoleon on Germany; the Prussian reform movement; the growth of nationalism; important German philosophers and historians; the revolution of 1848; the role of Bismarck and the unification of Germany; and Bismarck's foreign and domestic policy.

HST 353 three credits
History of Germany from 1890 to 1933

A study of Germany from the dismissal of Bismarck to the appointment of Hitler incorporating political, social, and intellectual history. Topics to be considered in depth include: the nature of the Second Reich under William II; the growth of anti-Semitism; World War I; the revolution of 1918; and the development and collapse of the Weimar Republic.

HST 354 three credits
History of Germany from 1933 to the Present

A study of Germany from Hitler to the present day. Topics to be considered in depth include: the career and personality of Hitler; the growth of the Nazi Movement; the nature of the Nazi state; the origins of World War II; Germany's post-war recovery; and the government, society and roles of the (West) German Federal Republic and the (East) German Democratic Republic, and re-unification.

HST 356 three credits
The Holocaust

An examination of the Holocaust, including the psychosocial aspects of prejudice; the history of Jew hatred from Biblical times; the historical, political, racist, economic, social, psychological, literary, legal, theological, and moral aspects of the Holocaust.

HST 361 three credits
Russia to 1855

Survey of Russia from the 9th Century to 1855. Stress will be given to political, social, and economic developments.

HST 362 three credits
Russia in Reform and Revolt, 1855 to 1918

Survey of Russia from 1855 to 1918. Emphasis will be on the great reforms, political and economic changes, the rise of revolutionary movements, the Revolution of 1905, and the Revolution of 1917.

HST 363 three credits
History of the Soviet Union

Study of Russia from 1918 to the present. Stress will be given to the establishment of the Communist government, the Five Year Plans, and the social and cultural changes resulting from the adoption of Soviet ideology. Attention will be given to the role of Russia in the modern world.

HST 364 three credits
Social and Cultural History of Russia

Topics pertaining to social classes, the development of serfdom, religion, and art and literature in Russia from the 9th Century to the present.

HST 365 three credits
Eastern European History

The study of the Eastern European bloc from the Middle Ages to the present. Emphasis will be given to the political and economic development of these countries and the establishments of Communism in the post-World War II period.

HST 366 three credits
Topics in the History of Soviet Foreign Policy

Topics relating to the principles underlying Soviet foreign policy and to different countries and areas where the Soviet government has conducted foreign policy: for example, the United States, Western Europe, the Third World, China. Not every topic will be taught each time the course is given.

HST 371 three credits
History of Portugal

A survey from the Roman era to the present with emphasis on the post-medieval period. Topics include the emergence of a unified state, dynastic rivalries, the economy, overseas expansion and empire, constitutional development, the "New State" of Salazar, the revolution of 1974, and post-revolutionary Portugal.

HST 372 three credits
Latin American-United States Relations

Surveys the long history of contacts between Anglo and Latin America, with fullest emphasis on the era of the national states and the evolution of the inter-American system. Economic, cultural, and political aspects of the relationship will be studied, up to the present.

HST 376 three credits
History of Brazil

Emphasis on the period since independence in 1822. Topics include the empire and slavery, coffee, European immigration, the republic, race and class, foreign economic and ideological influences, and Brazil in the 1980s.

HST 378 three credits
Slavery in the New World

The trans-Atlantic slave trade and slavery in the Americas from the sixteenth to the nineteenth century. Emphasis on the beginning and development of the trans-Atlantic slave trade; moral issues, economics, and tactics of the trade; and comparisons of the slave societies of Brazil, the Caribbean, and the United States.

HST 381 three credits
Modern Japan

A survey of modern Japan since the 19th Century, with emphasis on post-war Japanese politics and Japan's present role in world affairs.

HST 382 three credits
Modern China

A study of the major themes of modern Chinese history, including culturalism and nationalism, responses to the impact of the West, and the development of revolutionary ideology.

HST 385 three credits
History of the People's Republic of China

A study of the world's most populous country. Covers the rise and fall of Nationalist China, the establishment of the People's Republic, social transformation, economic policy, bureaucracy, and freedom, Mao's ideology, the people's communes, the cultural revolution, the new leadership, and the new U.S./China relationship.

HST 391 (AAS 391, LST 391) three credits
Topics in African History
Prerequisites: HST 190 or HST 290 or written permission of the instructor

Advanced-level course for students with a background in African history. Topics will vary from year to year. Research papers will be required.

HST 395 three credits
World Religions and Spirituality

Comparative and historical perspectives on world religions and humanity's search for meaning. Focuses on various cultural responses to "ultimate concerns" about the purpose of existence, creation, the supernatural, eternity, soul or spirit, death, suffering, good and evil, enlightenment, and salvation. Encompasses varied forms of religion and spiritual expression from highly structured and defined systems to folkways and mysticism.

HST 399 three credits
Teaching History and Social Studies in Secondary Schools
Prerequisites: EDU 207, 327

Examines the major genres, philosophies, and reference tools for the teaching of history and social studies in secondary schools. All students will collect material, including documents and audio-visuals, for a topic to be taught in the schools.

HST 400-494 three credits
Seminars in History

Seminars will be offered variously in such fields as United States history, European history, English history, Russian history, Latin American history, Asian history, history of ideas, and the history of women. The writing of a substantial paper will be required. Context will vary with instructor.

HST 495
Independent Study

HST 496
Directed Study

HST 499 six credits
Honors Seminar

The writing of an honors research paper. Students may elect to take three credits one semester and three in another.

HST 900
Contract Learning

Humanities/Social Sciences

Program Director, Lewis Kamm
Associate Dean, College of Arts and Sciences

The Bachelor of Arts in Humanities/Social Sciences offers students the opportunity to broaden their understanding of the scope of human civilizations of the past and present and to develop their ability to think and write critically, all in the classical tradition of the liberal arts. The program prepares the student for a wide variety of careers in human services, the professions, and the corporate world. Given its broad academic scope, it provides a foundation for career changes and retraining when necessary.

Humanities/Social Sciences Major
BA degree

Due to the interdisciplinary nature of the Humanities/Social Sciences major, students must work closely with their faculty advisor in selecting courses and constructing a coherent academic program. The student is urged to organize a minor or topical concentration of courses within the disciplines of the major. Possibilities include social service, comparative politics, political journalism, public administration, the writing option in English, the International Marketing Certificate in French, and so forth. The student could also pursue an option already formulated in the following areas: Women's Studies, Religious Studies, African American Studies, and Business and Labor.

Students are encouraged to declare the Humanities/Social Sciences major as soon as possible in their academic career, at which time they should submit to their faculty advisor a written rationale and proposed program of study. This major is not available to entering new freshman students.

Of the 120 credits required by the university for graduation, at least 30 course credits must be completed in advanced and specialized courses (300-level or above) at or under the sponsorship of UMass Dartmouth. No course may be used to fulfill more than one requirement. For example, the same Sociology course cannot be used to meet both the Social Science distribution requirement and the requirements for the Humanities/Social Sciences major.

Requirements

The major consists of 36 credits of Humanities/Social Sciences courses, at least 24 credits of which must be at the 300-level or above. The remaining 12 credits must be at least at the 200-level. Within the 36 credits, the following stipulations must be met.

1.
At least two areas must be selected in the Humanities and at least two arms must be selected in the Social Sciences.
2.
A minimum of 12 credits, including a 400-level course, must be taken in one of the areas selected.
3.
At least 6 credits must be taken in each of the other three areas selected.
4.
The remaining 6 credits of the major may be taken in any of the ten Humanities/Social Sciences disciplines.

Humanities
English
Foreign Literature and Languages
History
Philosophy
Art History
Music (non-applied courses)

Social Sciences
Economics
Political Science
Psychology
Sociology/Anthropology

Some courses listed in the Interdisciplinary Minors section of the catalog, pp. 367-392, may also meet these Humanities and Social Sciences distribution requirements. Please consult the Humanities/Social Science Program Director.

Mathematics can be pursued as a scholarly discipline of an especially elegant kind—a creative art form—or it can be treated as a valuable tool in an applied discipline.

The program for mathematics majors is designed to provide a solid foundation in the theoretical and applied aspects of mathematics necessary for a variety of professional careers. The flexibility within the third and fourth years was established to enable mathematics majors to concentrate in areas of their interest. The Computer-Oriented Mathematics Program (COMP) is designed for those seeking positions in industry or with the government. The program emphasizes applied and computer mathematics. Students can choose their curricula so as to emphasize that role of mathematics which will be useful to them in later years. For example, students may use our offerings as preparation for

- secondary school teaching;
- graduate school in mathematics, applied mathematics, or computer science;
- a career in applied mathematics in either the public or private sector; and
- graduate school in an area that uses mathematics, such as economics, biology or psychology.

Some mathematics majors have had success in law school, pharmaceutical school, and medical school.

The Department offers both a major and a minor program.

Faculty and Fields of Interest

Louis G. Bianco probability, statistics

Nurit Budinsky nonlinear differential equations, numerical analysis, nonlinear dynamical systems

Richard Faulkenberry linear algebra

Dana Fine applied math, relativity theory

Iwona Grzegorczyk algebraic geometry, mathematics education

Adam O. Hausknecht algebra, analysis of algorithms

James J. Kaput algebra, math education and the philosophy of mathematics

Anthony J. Kearsley scientific computing

Saeja Oh Kim modern algebra

Robert E. Kowalczyk probability, numerical analysis, computer applications

Richard Lesh math education

Steven J. Leon numerical analysis, linear algebra

Gary Martin logic

Robert McCabe analysis

Paul J. Parente applied mathematics

Annalisa Peterson recursion theory

Ronald Tannenwald (chairperson) dynamical systems

Lee-Ing Tong statistics

Fred W. Wolock statistics, operations research

Mathematics Major
BA degree

At the end of the sophomore year, students, aided by their faculty advisors, should plan a course of study for the completion of the college program. The advanced courses selected during the third and fourth years should be consistent with the students' interests and goals.

Students must earn a grade of C- or higher in all mathematics courses taken at the 200 or higher level in all undergraduate mathematics degree programs.

Requirements		Semester Credits	
		First	**Second**
First Year			
MTH 111, 112	Analytic Geometry and Calculus I & II	4	4
CIS 261	Computer Programming Fortran	3	
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities, Social Science or		
	Free Electives	3	6
MTH 181, 182	Discrete Structures	3	3
		16	**16**
Second Year			
MTH 211	Analytic Geometry and Calculus III	4	
MTH 212	Differential Equations		3
MTH 221	Linear Algebra	3	
PHY 113, 114	Classical Physics	4	4
	Literature	3	3
	Humanities, Social Science or		
	Free Electives	3	6
		17	**16**
Third Year			
MTH 311	Advanced Calculus I	3	
MTH 312	Advanced Calculus II		3
	Mathematics Electives*	3	3
	Humanities or Social Sciences	3	3
	Unspecified Electives	6	6
		15	**15**
Fourth Year			
MTH 441	Modern Algebra	3	
	Mathematics Electives*	3	3
	Humanities or Social Science	3	3
	Unspecified Electives	4	6
		13	**12**
	Total credits:		**120**

*See table, next column.

Mathematics Electives	code*
MTH 302	
Theory of Numbers	T
MTH 310	
Modern Methods in	
Mathematics Teaching	T
MTH 311, 312	
Advanced Calculus I, II	T, G, A
MTH 321, 322	
Topics in Applied Math I, II	A, G
MTH 331	
Probability	A, G
MTH 332	
Mathematical Statistics	A, G
MTH 353	
Applied Linear Algebra	A
MTH 361, 362	
Numerical Analysis I, II	A, G
MTH 381	
Combinatorial Theory	A, G
MTH 382	
Graph Theory	A,G
MTH 421	
Complex Variables	A, G
MTH 441, 442	
Modern Algebra I, II	A, G
MTH 443	
Applied Modern Algebra	A, G
MTH 451	
Differential Geometry	G
MTH 452	
Higher Geometry	G, T
MTH 461	
Elementary Topology	G
MTH 463	
Math Models	A
MTH 487	
Math Inquiry I	T, G
MTH 488	
Math Inquiry II	T, G
MTH 499	
Selected Topics in Math	T, G

*Code
T—recommended for students preparing to teach
G—recommended for students preparing for graduate school
A—recommended for students in applied mathematics

Mathematics Major
BS degree

Students may elect to earn a Bachelor of Science degree provided that they complete the requirements for the BA degree and also take an additional six credits of Natural Science (but only courses that the science departments themselves would credit to a major in their areas). The humanities/social science requirements for the BS degree are a combined total of eighteen credits. At least six must be taken from each area.

Mathematics Major: Computer-Oriented Mathematics Option
BS degree

In order to meet the needs of our present-day computer-oriented society, the Mathematics Department presently offers an alternative to the mathematics major program of study—a computer-oriented mathematics program leading to the BS degree in Mathematics. This program requires a core of computer science courses and emphasizes the applied mathematics areas more than the mathematics program. This program allows the student a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his or her special interests in any particular phase of computer-oriented mathematics.

The program has virtually the same freshman and sophomore years as the other programs in mathematics, computer and information science, computer engineering and electrical engineering. This allows a student to find his or her interests and make a final choice from among these before the end of the second year without any loss of time.

A BS degree in Mathematics (COMP) allows the student to enter graduate programs that specialize in computer-oriented mathematics or enter industrial employment where physical and industrial problems are analyzed mathematically.

The program offers a large choice of electives within the context of computer-oriented mathematics. The student can thus pursue his or her special interests in any particular phase of computer-oriented mathematics.

Requirements Semester Credits

		First	Second
First Year			
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
CIS 111	Computer Programming	3	
CIS 211	Introduction to Program Design and Data Structures		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities/Social Science Electives	3	3
MTH 181, 182	Discrete Structures I, II	3	3
		16	**16**
Second Year			
CIS 260	Computer Programming—FORTRAN	1	
MTH 211	Analytical Geometry and Calculus III	4	
MTH 212	Differential Equations		3
CIS 212	Introduction to File Processing	3	
PHY 113, 114	Classical Physics I, II	4	4
	Humanities/Social Science Electives	3	6
MTH 221	Linear Algebra		3
		15	**16**
Third Year			
MTH 321, 322	Topics in Applied Math I, II	3	3
MTH 331	Probability	3	
MTH 332	Mathematical Statistics		3
	Science Electives*	3	3
	Free Electives	3	3
	Literature	3	3
		15	**15**
Fourth Year			
MTH 361, 362	Numerical Analysis I, II	3	3
	Humanities/Social Science Elective	3	
	Technical Electives**	3	3
	Free Electives	6	4
MTH 353	Applied Linear Algebra		3
		15	**13**
	Total credits:		**121**

*
The Science Elective is defined as any course in Biology, Chemistry, Physics, or Medical Laboratory Science which is accepted for credit by majors in those programs.

**
The Technical Elective is defined as any upper-division Mathematics or Computer and Information Science course.

Mathematics Minor
BA Degree

Requirements

The minor in mathematics comprises a central core of required courses followed by opportunities for advanced work and some specialization. Any student of the university is eligible for the designation "Minor in Mathematics" upon completion of the following requirements. Each course for the minor must be completed with a grade of C- or better, and the student must maintain at least a C average (2.0 GPA) in the minor program.

		Credits
MTH 111	Analytic Geometry and Calculus I	4
MTH 112	Analytic Geometry and Calculus II	4
MTH 211	Analytic Geometry and Calculus III	4
At least one of the following courses:		
MTH 212	Differential Equations	3
MTH 221	Linear Algebra	
MTH 227	Linear Algebra for Applied Science	
At least three additional three-credit courses, numbered 300 or higher.		9
	Total	**24**

*administrative credits do not count towards the total required for graduation

MTH 100 three administrative credits *
Basic Algebra

An introductory level algebra course intended primarily for those with weak or no skills or those who have been away from the subject for some time. This course provides the algebra background required for all entry level courses in mathematics. This course may not be used to fulfill the total credit requirements for graduation.

MTH 101 three credits
Elements of College Mathematics I

MTH 101, 102 comprise a terminal course of study for students whose curriculum calls for one year of mathematics. It is also a prerequisite for MTH 231. The first semester covers selected topics from algebra, set theory, matrix algebra, and elementary functions.

MTH 102 three credits
Elements of College Mathematics II
Prerequisite: MTH 101 or MTH 103

Introduction to differential and integral calculus.

MTH 103 three credits
Finite Mathematics

Will cover selected topics from Logic, Set Theory, Vectors and Matrices, Linear Programming, Probability, Graphs and Theory of Games. May be taken in lieu of MTH 101.

MTH 104 three credits
Fundamentals of Statistics

The mathematical techniques involved in organizing data, averages and variation, elementary probability theory, the binomial distribution, normal distributions and related topics, estimation, hypothesis testing, regression and correlation, Chi Square- tests of independence, Chi Square- goodness of fit and analysis of variance: comparing several sample means.

MTH 105 three credits
Technical Calculus I

First semester of a four-term calculus sequence required of technology students and recommended for non-physical science majors desiring a basic introduction to analysis. The first term will review those topics from algebra and trigonometry needed in the sequel. Then the basic concepts of the differential calculus will be studied.

MTH 106 three credits
Technical Calculus II
Prerequisite: MTH 105

Continuation of MTH 105. Further study of algebraic and transcendental functions of one variable and topics from the integral calculus of these functions.

MTH 108 three credits
Modern Math for Elementary Teachers

Problems of the changing modern mathematics curriculum. Current issues, attitudes, and learning theories will be studied, including the mathematical foundations of the elementary school curriculum.

MTH 111 four credits
Analytic Geometry and Calculus I
Prerequisite: Trigonometry

First semester of a four term sequence required of majors in mathematics, the physical sciences and engineering. Recommended for others desiring a thorough background in elementary analysis. Term 1 will cover topics in analytic geometry, the concepts of function and limit, continuity, differentiability and integrability of elementary algebraic and transcendental functions. Techniques of differentiation and applications will then be studied.

MTH 112 four credits
Analytic Geometry and Calculus II
Prerequisite: MTH 111

Continuation of MTH 111. Topics from the integral calculus, stressing techniques of integration (including numerical methods). Infinite series.

MTH 131 three credits
Pre-calculus

This course is designed to provide students with the precalculus background necessary for MTH 111 or MTH 105. The course covers topics in algebra, trigonometry and finite mathematics.

MTH 181/182 three credits each
Introduction to Discrete Structures

Review of set algebra including mappings and relations, algebraic structures including semigroups and groups. Elements of the theory of directed and undirected graphs. Boolean algebra and propositional logic. Applications of these structures to various areas of computers.

MTH 203 three credits
Technical Calculus III
Prerequisite: MTH 106

Continuation of MTH 106. Topics include conic sections, polar coordinates, functions of two variables, partial differentiation, multiple integration and infinite series.

MTH 204 three credits
Elementary Differential Equations
Prerequisite: MTH 203

Techniques in the solutions of ordinary differential equations, and applications from engineering. Similar to MTH 212 with less emphasis on theory and more on applications. The natural continuation of MTH 203.

MTH 211 four credits
Analytic Geometry and Calculus III
Prerequisite: MTH 112

Continuation of MTH 112. Two and three dimensional vectors, partial differentiation, multiple integrals and applications.

MTH 212 three credits
Differential Equations I
Prerequisite: MTH 112

Continuation of MTH 211. Ordinary differential equations of the first order, linear differential equations of the nth order, some nonlinear second order equations, series solutions and Laplace transforms.

MTH 221 three credits
Linear Algebra
Prerequisite: MTH 111

Required of all second-year mathematics majors and recommended for students in the physical, natural, behavioral and management sciences. Course material includes systems of linear equations, matrix theory, vector spaces, linear transformations, Eigenvalues.

MTH 227 three credits
Linear Algebra for Applied Sciences
Prerequisite: MTH 111

Linear algebra course for non-majors. A first course in linear algebra covering general theory of matrices and linear systems. Topics include: Matrices and linear systems, determinants, vector spaces , orthogonality, and eigenvalues. This course includes computer laboratory exercises.

MTH 231 three credits
Elementary Statistics I

Fundamental business statistics. The text, examples, and applications are all business-oriented. The first-semester topics include descriptive statistics, probability, estimation, statistical inference and sampling.

MTH 232 three credits
Elementary Statistics II
Prerequisite: MTH 231

Continuation of MTH 231. Regression and correlation analysis. Analysis of variance. Goodness-of-fit tests. An introduction to Bayesian decision methods.

MTH 233 three credits
Elementary Applied Statistics (Honors)
Prerequisites: College Algebra and at least a score of 550 on Math SAT, or permission of the instructor

Topics in descriptive and inferential statistics including summary measures, discrete probability, normal density functions, point and interval estimation, hypothesis testing procedures, t-tests, analysis of variance, chi-square tests, correlation, and regression analysis. A statistical computer software package will be extensively utilized. A condensation of the topics covered in MTH 231 and 232, this course satisfies the MTH 231/2 requirement of most business-related majors.

MTH 302 three credits
Theory of Numbers

A study of the integers, divisibility properties, diophantine equations, congruences, quadratic residues, Pythagorean triangles and selected higher topics.

MTH 310 three credits
Modern Methods in Mathematics Teaching
Must be a major in mathematics.

The use of techniques and materials in teaching the mathematical sciences in grades 8-12. Special attention will be given to new information technology and its use in enhancing learning and problem-solving abilities. This course will concentrate on the integration of commercially-available computer software into the mathematics curriculum in algebra, geometry, statistics, and precalculus, as well as with more traditional materials. This course is for mathematics majors intending to teach.

MTH 311 three credits
Advanced Calculus I
Prerequisite: MTH 212

This course is a rigorous analysis of the concept of limits, continuity, the derivative and other selected areas.

MTH 312 three credits
Advanced Calculus II
Prerequisite: MTH 311

Continuation of MTH 311 with emphasis on uniform convergence and related topics.

MTH 321 three credits
Topics in Applied Mathematics I
Prerequisite: MTH 212

A study of Fourier Series and Integrals, Fourier and Laplace Transforms, Partial Differential Equations.

MTH 322 three credits
Topics in Applied Mathematics II
Prerequisite: MTH 321

Continuation of MTH 321. This course covers Besel functions and Legendre polynomials; calculus of variations, vector analysis.

MTH 331 three credits
Probability
Prerequisite: MTH 112

A calculus-based introduction to statistics. This course covers probability and combinatorial problems, discrete and continuous random variables and various distributions including the binomial, Poisson, hypergeometric normal, gamma and chi-square. Moment generating functions, transformation and sampling distributions are studied.

MTH 332 three credits
Mathematical Statistics
Prerequisite: MTH 331

Continuation of MTH 331. Classical estimation methods and hypothesis testing are studied. This course also covers Chi square tests for goodness-of-fit and independence, regression and correlation analysis, and one-way and two-way analysis of variance including factorial designs and tests for the separation of means.

MTH 353 three credits
Applied Linear Algebra
Prerequisites: MTH 221, CIS 261

Orthogonality and least square problems. Other topics include applications of eigenvalue, quadratic forms, Numerical Linear Algebra.

MTH 361 three credits
Numerical Analysis I
Prerequisites: MTH 221, CIS 261, MTH 212 (MTH 221 may be taken concurrently)

Theory and computer-oriented practice in obtaining numerical solutions of various problems. Topics include stability and conditioning, nonlinear equations, systems of linear equations, interpolation and approximation theory.

MTH 362 three credits
Numerical Analysis II
Prerequisite: MTH 361

Numerical methods for solving initial value problems. Topics include: numerical differentiation and integration, Euler method and Taylor's series method, Runge-Kutta methods, multi-step methods, and stiff equations.

MTH 381 three credits
Combinatorial Theory
Prerequisites: MTH 111, 112, 181, 182, 221

Techniques of counting. Topics included are elementary enumerative methods, generating functions, partitions, recurrence relations, inclusion-exclusion principle, the Polya theory of counting, generalizations of the pigeonhole principle and selected topics from experimental design and coding theory.

MTH 382 three credits
Graph Theory
Prerequisites: MTH 111, 112, 181, 182, 221

A study of graph theory and its applications. Topics included are Hamiltonian and Eulerian properties, matching, trees, connectivity, coloring problems, and planarity. Emphasis will be on applications including optimization of graphs and networks.

MTH 421 three credits
Complex Analysis
Prerequisite: MTH 211

Analytic functions, differentiation, integration, conformal mapping, calculus of residues and infinite series.

MTH 441 three credits
Modern Algebra I
Prerequisite: MTH 221

The study of relations, functions, groups, rings and fields.

MTH 442 three credits
Modern Algebra II
Prerequisites: MTH 221, 441

This course deals primarily with the following: Sylow theorems, polynomials, field extensions and Galois theory.

MTH 451 three credits
Differential Geometry
Prerequisite: MTH 312

Analysis of curves and surfaces. Frenet-Serret formulae. First and second fundamental forms for surfaces, Gaussian and mean curvature, theorems of Meusnier and Rodriques, and the Gauss-Bonnet theorem are also studied.

MTH 452 three credits
Introduction to Higher Geometry
Prerequisite: MTH 211

A survey of the history of geometry, emphasizing the scholars of antiquity. Topics from modern (college) geometry, projective and non-Euclidean geometries.

MTH 461 three credits
Elementary Topology
Prerequisite: MTH 312

An introduction to point-set and combinatorial topology.

MTH 463 three credits
Math Modeling

Selected topics from the areas of linear programming, dynamic programming, Markov chains and game theory. Mathematical model building will be developed through the use of numerous case studies from the natural and social sciences, e.g., ecological models, network models, scheduling models, urban structure, traffic flow, growth, etc.

MTH 464 three credits
Simulations

Deterministic and nondeterministic simulation. Random number generators, Monte Carlo techniques, discrete simulation techniques and simulation computer languages (e.g., GPSS, SIMSCRIPT) are studied. Standard Simulations Models, such as the national economy model, inventory control, banking, blackjack, etc., will also be covered.

MTH 487 three credits
Mathematical Inquiry I
Prerequisite: MTH 212

Course is conducted as a seminar. An elementary question is posed to the students who must generate their own mathematics in an attempt to find a solution. The aim is to develop student independence and creativity.

MTH 488 three credits
Mathematical Inquiry II
Prerequisite: MTH 212

A second semester of inquiry, independent of the first.

MTH 495
Independent Study

MTH 496
Directed Study

MTH 499 three credits
Selected Topics in Mathematics
Prerequisites: MTH 212 and permission of department

A special course to meet the needs of students for material not encountered in other courses. Topics dealt with require the approval of the departmental chairperson.

MTH 900
Contract Learning

Medical Laboratory Science

In medical laboratory science, both the clinical laboratory science option and the cytotechnology option provide students with the concepts, professional attitudes, scientific theory and skills essential for practicing clinical laboratorians. Medical laboratory science leads students to understand the health care delivery system and the role of the clinical laboratory scientist and cytotechnologist in that system, to function as professionals, and to gain the skills and attitudes needed to enter their practice. All graduates are eligible for national certification.

Students use state-of-the-art equipment and laboratory methods in the new, modern-design laboratory facility. The medical laboratory science faculty are professional laboratory scientists and leaders in local, regional, and national professional and scientific organizations who influence the practice of the profession by serving on committees and as consultants.

The option in clinical laboratory science is an integrated program, accredited by the National Accrediting Agency for Clinical Laboratory Sciences. The program officials are Gordon B. Robbins, MD (Medical Advisor), Joan Felder, MS, MEd (Program Director) and Dorothy A. Bergeron, MS (Education Coordinator). The clinical laboratory theory and methods integrated throughout the four-year curriculum culminate with a clinical practicum in an affiliated hospital during the second semester of the senior year. Laboratory instrumentation, use of computers in laboratories, and quality assurance are emphasized throughout. Careers are available in hospital, independent, public health, industrial, pharmaceutical, and private laboratories as scientists and researchers, and some clinical laboratory scientist work as educators, administrators, and consultants. By presenting a diverse background in science, analytical skills, and problem-solving, medical laboratory science prepares students for post-graduate studies in the sciences (including chemistry, microbiology, pathology), administration (including human resource management, health service administration, and business administration) and professional schools (including medical, osteopathy, and physician assistant).

The option in cytotechnology is a distinct specialty within the clinical laboratory involved in the microscopic evaluation of cells to detect morphologic changes related to benign and malignant disease. The first three years are spent on campus building a foundation in biology, chemistry, math, and medical laboratory science, followed by a one year clinical practicum in an accredited hospital program. A strong sense of responsibility, ability to concentrate, and an interest in natural science are necessary qualities for a cytotechnologist. Career opportunities are excellent. Cytotechnologists are employed as laboratory managers, educators, medical sales representatives, technical representatives, and scientists in private and hospital-based laboratories, state, federal or industrial laboratories, research laboratories and veterinary laboratories. Graduate study possibilities include pathology, anatomy, or genetics.

Faculty and Fields of Interest

Dorothy A. Bergeron immunohematology, health education, professional issues

Eileen Carreiro-Lewandowski clinical chemistry, biochemistry, laboratory regulation

Joan Felder bioethics, health education

James T. Griffith (chairperson) microbiology, antimicrobial agents, health legislation

Susan J. Leclair hematology, health planning

Catherine Sheehan immunology, special chemistry

Medical Laboratory Science Major
BS degree

Entrance to Medical Laboratory Science

Admission is arranged by the University Office of Admissions. In addition to the general course requirements for admission, the Department of Medical Laboratory Science more specifically requires 2 units of Natural Science and 3 units of College Preparatory Mathematics which must include 2 units of algebra.

Entrance to the Upper Division of the Option in Clinical Laboratory Science

Admission to the upper division of the option in clinical laboratory science requires the completion of all prerequisites in the first two years as outlined in the requirements. The Committee on Advanced Standing meets each spring to evaluate the academic and professional progress of sophomore students. After reviewing the records, the committee recommends to the department faculty those students to be admitted to the upper division of the option in clinical laboratory science. The minimum cumulative science grade point average is 2.0 in all completed science courses. Provisional acceptance with academic qualifications is possible in unusual circumstances. The student's progress toward satisfying degree requirements and certification requirements will also be reviewed.

Entrance to the Option in Cytotechnology

Students interested in this option are encouraged to discuss cytotechnology with the department chairperson as early as possible to select the most appropriate courses. Application for this option should be made during the spring semester of the sophomore year and no later than the fall semester of the junior year. Generally, students apply for admission to the accredited hospital program in the fall semester of the junior year.

Admission of Transfer Students and Certified Clinical Laboratory Technicians

All students seeking admission to the medical laboratory science major must meet the same entrance requirements as those who apply as freshmen. Credits earned in another college may be accepted as transfer credits after evaluation of official transcripts. All required Medical Laboratory Science courses must be taken at the University of Massachusetts at Dartmouth, unless approved by the department.

Medical Laboratory Science Major
Clinical Laboratory Science Option

Requirements Semester Credits

		First	Second
First Year			
MLS 115, 116	Introduction to Medical Laboratory Science I, II	1	1
BIO 111	Introduction to Human Physiology	4	
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 161, 162	Introductory Applied Chemistry I, II	1	1
MTH 104	Fundamentals of Statistics		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities/Social Sciences/Literature	3	6
		15	**17**
Second Year			
MLS 315	Human Genetics	3	
MLS 317	Human Genetics Laboratory	1	
MLS 226	Pathophysiology		3
MLS 228	Pathophysiology Laboratory		1
MLS 360	Clinical Chemistry Applied to Diagnostic Techniques		3
MLS 362	Clinical Chemistry Applied to Diagnostic Techniques Laboratory		1
CHM 251	Organic Chemistry I	3	
CHM 263	Bio-Organic Chemistry Laboratory	1	
	Humanities/Social Sciences/Literature	6	6
	Free Elective		3
		14	**17**
Integrated Program			
Third Year			
MLS 301	General Microbiology	4	
MLS 309	General Microbiology Laboratory	1	
MLS 302	Medical Bacteriology		3
MLS 304	Medical Bacteriology Laboratory		1
MLS 305	Clinical Immunobiology	3	
MLS 307	Clinical Immunobiology Laboratory	1	
MLS 322	Fundamentals of Clinical Hematology		2
MLS 324	Fundamentals of Clinical Hematology Lab		1
MLS 449	Special Laboratory I Lecture		2
MLS 451	Special Laboratory I		1
PHL 317	Ethics and Health Care Professionals		3
	Free Electives	3	
		12	**13**
Fourth Year			
MLS 401, 402	Clinical Microbiology I, II	5	4
MLS 409, 410	Immunohematology I, II	2	2
MLS 419, 420	Clinical Biochemistry I, II	5	4
MLS 429, 430	Hematology I, II	3	3
MLS 439	Clinical Microscopy	2	
MLS 450	Special Laboratory II		2
		17	**15**
	Total Credits		**120**

The faculty assigns the students in the clinical practicum at the following affiliates: Charlton Memorial Hospital (Fall River, MA), Good Samaritan Medical Center (Brockton, MA), Morton Hospital and Medical Center (Taunton, MA), New England Medical Center (Boston, MA), Rhode Island Blood Center (Providence, RI), Roger Williams Medical Center (Providence, RI), St. Luke's Hospital (New Bedford, MA), and Veterans Administration Medical Center of Providence (Providence, RI).

Students may elect any available free elective courses for which they qualify. Students may wish to select their elective courses to provide the basis for a particular medical laboratory science specialty or so as to be eligible for another major of their choice should they change their career plans.

Medical Laboratory Science Major
Cytotechnology Option

Academic Regulation	Requirements	
In the clinical laboratory science option, each medical laboratory science course must be satisfactorily completed as defined in the "Policy for Successful Completion of Medical Laboratory Science Courses," distributed to all students as they begin their course of study.	1. A minimum of 20 semester hours of approved courses in biological and laboratory science. 2. A minimum of 8 semester hours of chemistry. 3. All requirements of the university and the College of Arts and Sciences for a B.S. degree. 4. Free electives to bring the total to 90 credits, preceding the fourth year. 5. Successful completion of a CAHEA-approved hospital cytotechnology program. Each hospital cytotechnology program determines the number of credits in a specific course based on the nature of the laboratory and the range of case presentations. A minimum of thirty credits from the courses listed below are granted at the completion of the hospital cytotechnology program. MLS 461 Introduction to Cytotechnology MLS 462 Special Topics in Cytotechnology MLS 463 Cytopathology MLS 464 Medical Cytology MLS 465 Cytotechnology Seminar MLS 466 Applied Cytotechnology MLS 467 Cytology Practicum MLS 468 Cytology Practicum II	All students must be recommended by the department chairperson to the approved hospital program. The university cannot guarantee placement in an approved hospital program. Clinical fees are established by the hospital program. Students are required to pay this fee in addition to the usual university fees.

MLS 105 three credits
Contemporary Topics in Human Ecology I

Medical-social problems as they relate to modern society. Contemporary topics such as human inheritance and eugenics, factors affecting I.Q., basic human physiology, the disease state, birth control and abortion. This course satisfies the science distribution requirement.

MLS 106 three credits
Contemporary Topics in Human Ecology II

Continuation of MLS 105. This course satisfies the science distribution requirement.

MLS 111 one credit
Medical Technology Seminar

A basic orientation to the field of laboratory medicine. The specialty areas of medical laboratory science, manpower problems, upward mobility, professional organizations, accreditation, certification, the team concept and professionalism are discussed.

MLS 113 one credit
Introduction to Clinical Laboratory Techniques

An introduction to the fundamental techniques used in the clinical laboratory. Topics shall include qualitative and quantitative testing on body fluids, safety and quality control.

MLS 115 one credit
Introduction to Medical Laboratory Science I

Specialty areas, professional issues, career mobility and an introduction to the university and its facilities presented in lectures, field trips and laboratory experiences. Fundamentals of clinical laboratory techniques will be interspersed with lectures and discussions. Library, computer and Student Resource Center facilities will be utilized during class time.

MLS 116 one credit
Introduction to Medical Laboratory Science II
Prerequisite: MLS 115

Continuation of MLS 115.

MLS 226 three credits
Pathophysiology
Prerequisite: BIO 111 or permission of instructor

The selection, generation, and translation of basic information for the diagnosis, prognosis and management of clinical samples. Health screen vs. diagnostic and prognostic profiles will be discussed.

MLS 228 one credit
Pathophysiology Laboratory
Corequisite: MLS 226
Prerequisite: MLS 116 or permission of instructor

A laboratory correlated with MLS 226.

MLS 301 four credits
General Microbiology
Prerequisites: MLS 360 and MLS 362, or permission of instructor

This course presents the basic concepts of physiology, genetics, morphology, ecology, systematics and control of microorganisms.

MLS 302 three credits
Medical Bacteriology
Prerequisite: MLS 301

The theoretical basis for an in-depth understanding of organisms of medical importance. Stress shall be placed on bacterial physiology as it relates to disease. Quality control, statistical methods, and current literature shall be analyzed.

MLS 304 one credit
Medical Bacteriology Laboratory
Corequisite: MLS 302
Prerequisite: MLS 309 or permission of instructor

A laboratory correlated with MLS 302.

MLS 305 three credits
Clinical Immunobiology

The emerging concepts of immunobiology. Topics will include immunogens, immunoglobulins, autoimmunity, infection and immunity, immunohematology, and tumor biology.

MLS 307 one credit
Clinical Immunobiology Laboratory
Corequisite: MLS 305

A laboratory correlated with MLS 305.

MLS 309 one credit
General Microbiology Laboratory
Corequisite: MLS 301

A laboratory correlated with MLS 301.

MLS 311 one to three credits
Medical Technology Seminar I
Prerequisite: Junior or senior standing or permission of instructor

Selected topics shall be presented, determined by current interests and developments in clinical laboratory science.

MLS 312 one to three credits
Medical Technology Seminar II
Prerequisite: Junior or senior standing or permission of instructor

Selected topics shall be presented by both faculty and students. Topics shall be submitted from affiliated hospitals.

MLS 315 three credits
Human Genetics

An intensive survey of genetic mechanisms emphasizing the effect on human inheritance and disease.

MLS 317 one credit
Human Genetics Laboratory
Corequisite: MLS 315

A laboratory correlated with MLS 315.

MLS 319 three credits
Health Care Legislation

Major, recent, and pending health care legislation and its impact on the provider will be discussed. Possible topics include: Medicare, Medicaid, health manpower, accreditation, licensure, professional standards review, health systems agencies, and national health insurance.

MLS 322 two credits
Fundamentals of Clinical Hematology
Prerequisites: MLS 315, MLS 317 or permission of instructor

Introduction to the pathophysiology of anemias, leukocyte dyscrasias and disorders. Topics may include bone marrow activity, cell energetics, testing protocols and examples of various modalities of therapy.

MLS 324 one credit
Fundamentals of Clinical Hematology Laboratory
Corequisite: MLS 322
Prerequisites: MLS 315, MLS 317 or permission of instructor

Introduction to the morphology and biochemical testing of cells involved in anemias, leukocyte dyscrasias and other disorders. Topics may include bone marrow morphology, peripheral blood morphology and cytochemical testing protocols.

MLS 360 three credits
Clinical Chemistry Applied in Diagnostic Techniques
Prerequisite: CHM 251 or permission of instructor.

Medically relevant carbohydrates, proteins, lipids, hormones, nonprotein nitrogenous substances, and enzymes will be discussed.

MLS 362 one credit
Clinical Chemistry Applied in Diagnostic Techniques Laboratory
Corequisite: MLS 360

A laboratory correlated with MLS 360.

MLS 449 two credits
Special Laboratory I Lecture
Prerequisites: MLS 360 and MLS 362, or permission of instructor

Study of special areas of the clinical laboratory. Intensive study of special topics in such areas as analytical instrumentation, electronics, urinalysis, endocrinology, microbiology, and nuclear medicine.

MLS 451 one credit
Special Laboratory I
Corequisite: MLS 449

A laboratory course correlated with MLS 449.

The following courses are presented on campus and at affiliated hospitals for an academic year that may exceed the regular academic year. This year will consist of 40 hours per week on campus and/or in affiliated hospital(s). Lecture and laboratory hours shall comply with the standards set by the National Accrediting Agency for Clinical Laboratory Sciences. These are open only to medical laboratory science students or by permission of the Department:

MLS 401 five credits
Clinical Microbiology I

The principles or practice of diagnostic microbiology such as specimen collection and handling, quality control, and laboratory safety. Clinical correlation, immunology and hospital surveillance will be included.

MLS 402 four credits
Clinical Microbiology II

Continuation of MLS 401.

MLS 409 two credits
Immunohematology I

The principles of blood banking, including the preparation and storage of blood and its components, donor evaluation, transfusion, required record keeping, and processing of frozen blood. Clinical correlation, quality control and laboratory safety will be included.

MLS 410 two credits
Immunohematology II

Continuation of MLS 409.

Senior-Level Courses: Option in Cytotechnology

MLS 419 five credits
Clinical Biochemistry I

Principles of the physical and chemical analysis of medically significant organic and inorganic substances found in human body fluids and tissues. Laboratory instrumentation and electronics, metabolic screening, specimen collection, clinical correlation, quality control and laboratory safety will be emphasized.

MLS 420 four credits
Clinical Biochemistry II

Continuation of MLS 419.

MLS 429 three credits
Hematology I

Subjects include the analysis and clinical correlation of quantitative and qualitative variations in blood. Blood cell and other formed element morphology, the dynamics of coagulation, processing and evaluation of human bone marrow, quality control and laboratory safety will be studied.

MLS 430 three credits
Hematology II

Continuation of MLS 429.

MLS 439 two credits
Clinical Microscopy

The applied principles of the clinical evaluation of the physical and chemical constituents and formed elements of kidney filtrate. Quality control, laboratory safety and clinical correlation shall be covered.

MLS 450 two credits
Special Lab II
Prerequisites: MLS 402, 410, 420, and 430 or permission of the instructor.

Intensive, integrated study of selected topics in clinical laboratory science including management.

MLS 461 one to three credits
Introduction to Cytotechnology

A review of cell structure, principles of microscopy, and staining techniques. Anatomy and physiology of the female reproductive system and study of the non-malignant cytology of the female genital tract will be covered.

MLS 462 one to three credits
Special Topics in Cytotechnology

Special projects in cytology, cytopathology or cytotechnology are investigated or reviewed and reported by the student. Written or oral presentation is required.

MLS 463 one to four credits
Cytopathology

Cytopathology and clinical aspects of cervical dysplasia, carcinoma-in-situ and invasive squamous cell carcinoma. Consideration of endometrial and endocervical carcinoma, other genital tract cancers and radiation effect.

MLS 464 one to four credits
Medical Cytology

Benign and malignant cytology of the respiratory and gastrointestinal tracts will be correlated with anatomy and physiology. Benign, a-typical, and malignant exfoliative cells from the urinary tracts, serous effusion, cerebrospinal fluid and breast secretions will be studied.

MLS 465 one to two credits
Cytotechnology Seminar

Presentation, discussion and interpretation of benign, suspicious, and hormonal conditions. The cytological diagnostic criteria of malignant tumors from various body sites and their histopathological correlation will be studied.

Senior-Level Courses
Not limited as to option

MLS 466 one to three credits
Applied Cytotechnology

The microscopic evaluation and screening of cytological smears from various body sites. Effects of radiation and of chemotherapy; diagnosis of suspicious and hormonal conditions; cytological observations in pregnancy. Cell research techniques. Epidemiology and current concepts related to cytotechnology.

MLS 467 one to eight credits
Cytology Practicum I

The microscopic evaluation and screening of benign cytological smears and smears from cervical dysplasia; carcinoma-in-situ, and invasive malignant tumors of the female genital tract.

MLS 468 one to eight credits
Cytology Practicum II

The microscopic evaluation and screening of cytological smears from the respiratory tract, gastrointestinal tract, urinary tract and from body fluids. Continuing evaluation of cytological smears from the gynecological tract.

MLS 495 one to four credits
Independent Study in Medical Laboratory Science
Prerequisite: Permission of instructor

The student selects a topic for in-depth study. Readings and reports are supervised by a member of the faculty. Terms and hours to be arranged.

MLS 496 one to four credits
Directed Study

MLS 497 two credits
Research Project
4 hours per credit hour per week.
Prerequisite: Permission of instructor

The student initiates a proposal on a selected research topic. The research is done under the supervision of the appropriate faculty member. A completed paper is required.

MLS 498 one to four credits
Research Project

Continuation of MLS 497.

MLS 900
Contract Learning Senior-Level Courses

Multidisciplinary Studies

Program Director
Robert N. Leamnson

Students with a GPA of at least 2.0 who wish to pursue in depth more than a single discipline may choose the Multidisciplinary Studies (MDS) major. MDS allows students to design, with advice, a course of study that includes several areas of interest. Considerable latitude is allowed in the design of a program of study, and course work, studios and laboratories from any of the colleges may be included. In this way students have been able to design a major that concentrates on multidisciplinary topics such as:

Cognitive Science
Communications/Advertising
Environmental Studies
Gerontology
International Relations/Business
Scientific Illustration
Sociobiology
Urban Society

and other areas of special interest.

Either the BS or BA degree can be earned in Multidisciplinary Studies, depending on the design of the program of study.

Multidisciplinary studies is intended as an option for students who have some familiarity with college level study. Thus it is available only to students who have completed at least one semester of college work, and not to entering freshmen. Transfer applicants with a minimum of 15 transferrable credits may receive admission, if otherwise qualified, upon the recommendation of the MDS Director, based on an in-person interview with the MDS Director. The earlier a program of study is designed, the greater the flexibility in scheduling the required courses. As with most other changes of majors, requests from seniors can rarely be accommodated.

General Requirements

The core of the Multidisciplinary Studies major is a thematic program of study that encompasses two or more disciplines. This program will consist of a minimum of 36 credits in the selected disciplines, 30 of which must be at the 300 level or above. (Contract learning and courses in education may not be included in the 300- and 400- level courses.) Ordinarily only three credits of either independent study or directed study may be included in the 30 credits of required 300 level (or above) courses.

To become a Multidisciplinary Studies major the student must, before the end of the Junior year:

- Identify a faculty member who will act as academic advisor and who will assist in the design of the program. (Some Multidisciplinary Studies majors have two advisors.)
- Obtain a "Change of Major" form from the Registrar's Office or the Multidisciplinary Studies Director.
- Write a one-page description of the proposed program of study. This description should include the objectives of the program and a rationale for how the courses chosen meet the objectives.
- Obtain from the director of Multidisciplinary Studies a "Contract" in which the courses that make up the program are to be listed.
- Consult with the faculty advisor and complete the contract.

Substitution for courses in the MDS contract is not allowed without prior written approval by the faculty advisor, the program director, and the Dean of Arts and Sciences.

Students interested in a Multidisciplinary Studies program should be aware that many 300- level courses have 100- or 200-level prerequisites. It is the responsibility of the student to complete prerequisites for 300-level courses. Therefore, considerable care must be taken in planning a program if it includes 300-level courses in more than two disciplines.

Interested students should contact the Director of Multidisciplinary Studies.

Multidisciplinary Studies Major
BA degree

Requirements

For the BA degree, all College of Arts and Sciences requirements for that degree must be satisfied, and the program listed in the contract, described above, must be completed.

Multidisciplinary Studies Major
BS degree

Requirements

For the BS degree, all College of Arts and Sciences requirements for that degree must be satisfied, and the program listed in the contract, described above, must be completed. In addition, the contract must contain the components of either of the two options given below. ("Sciences" include Biology, Chemistry, Computer and Information Science, Mathematics, Medical Laboratory Science, and Physics.)

Option 1
a) 36 credits in two or three sciences, 30 of which are at the 300 level or higher

b) A two semester sequence of mathematics if mathematics is not a component of a) above

Option 2
a) 15 credits (300 level or above) in one or two sciences

b) 15 credits (300 level or above) in one or two disciplines other than science

c) 9 credits in sciences (any level) other than disciplines included in a) above

d) A two semester sequence of mathematics if mathematics is not a component of a) or c) above

Philosophy

Philosophy is quite unlike any other field. It is unique both in its methods and in the nature and breadth of its subject matter. Philosophy pursues questions in every dimension of human life, and its techniques apply to problems in any field of study or endeavor. No brief definition expresses the richness and variety of philosophy. It is a reasoned pursuit of fundamental truths, a quest for understanding, a study of principles of conduct. It seeks to establish standards of evidence, to provide rational methods of resolving conflicts, and to create techniques for evaluating ideas and arguments. Philosophy develops the capacity to see the world from the perspective of other individuals and other cultures; it enhances one's ability to perceive the relationships among the various fields of study; and it deepens one's sense of the meaning and varieties of human experience.

The faculty in the department have a diversity of backgrounds and areas of specialization. This makes possible a solid grounding in the history of philosophy and in the various sub-areas of philosophy—ethics, logic, metaphysics, philosophy of religion, philosophy of science, theory of knowledge. The approach of the department is pluralistic.

Because of its wide perspective, philosophy is the cornerstone of the humanities. Pursuing it as a major or as a minor will add an important dimension to one's educational growth. For those with career interests outside the field of philosophy, it serves well as a double major. Training in philosophy is highly regarded in professional fields such as law, medicine, computers, and artificial intelligence or government.

Faculty and Fields of Interest

Diane Barense philosophy of logic, philosophy of science, philosophy of language, philosophy of feminism

Richard A. Hogan ancient philosophy (especially Plato), analytic philosophy, history of philosophy, Nietzsche

James Gordon Place(chairperson) history of philosophy, contemporary European philosophy, aesthetics

Philosophy Major
BA degree

Requirements		Credits
PHL 110	Logic (PHL 108 Critical Thinking or PHL 235 Symbolic Logic may be substituted)	3
PHL 221	History of Western Philosophy: Ancient (PHL 223 History of Western Philosophy: Medieval may be substituted)	3
PHL 222	History of Western Philosophy: Modern	3
Two courses in contemporary philosophy selected from:		
PHL 361	Contemporary Continental Philosophy	6
PHL 371	Contemporary Anglo-American Philosophy	
PHL 382	Contemporary American Philosophy	
A seminar course selected from:		
PHL 410-419	Seminar (consult course listings)	3
PHL 350	Plato—may also be taken as a seminar	
At least three courses in systematic philosophy selected from courses numbered 300-349		
PHL 301	Theory of Knowledge	9
PHL 303	Metaphysics	
PHL 311	Philosophy of Language	
PHL 315	Advanced Ethics	
PHL 316	Political Philosophy	
PHL 318	Bioethics	
PHL 320	Philosophy of Science	
PHL 323	Philosophy of Art	
PHL 324	Philosophy of History	
PHL 325	Philosophy of Religion	
PHL 326	Philosophy of Law	
PHL 332	Philosophy of Human Nature	
Two courses selected from the following list:		
PHL 101	Introduction to Philosophy	6
PHL 102	Philosophical Aspects of Feminism	
PHL 107	Thinking and Writing	
PHL 108	Critical Thinking (if not taken above)	
PHL 200	Special Topics in Philosophy	
PHL 207	Introduction to Aesthetics	
PHL 210	Socrates	
PHL 215	Ethics I	
PHL 222	History of Western Philosophy: Modern (if not taken above)	
PHL 223	History of Western Philosophy: Medieval (if not taken above)	
PHL 224	Nineteenth Century Philosophic Thought	
PHL 226	Marx	
PHL 227	Nietzsche	
PHL 232	Inductive Inference	
PHL 235	Symbolic Logic (if not taken above)	
	Total	**33**

Philosophy Minor

Requirements		Credits
Selection of philosophy as a minor requires that the grade point average in one's major be at least 2.5.	One course in the history of philosophy	
	PHL 221 History of Western Philosophy: Ancient	3
	OR	
	PHL 222 History of Western Philosophy: Modern	
	OR	
	PHL 223 History of Western Philosophy: Medieval	
	Four courses selected from the following list, with the understanding that two of the courses must be in the upper division (numbered between 300 to 391):	
	PHL 101 Introduction to Philosophy	12
	PHL 102 Philosophical Aspects of Feminism	
	PHL 110 Logic	
	PHL 207 Introduction to Aesthetics	
	PHL 210 Socrates	
	PHL 215 Ethics	
	PHL 221 History of Western Philosophy: Ancient (if not taken above)	
	PHL 222 History of Western Philosophy: Modern (if not taken above)	
	PHL 223 History of Western Philosophy: Medieval (if not taken above)	
	PHL 224 Nineteenth Century Philosophic Thought	
	PHL 226 Marx	
	PHL 227 Nietzsche	
	PHL 232 Inductive Inference	
	PHL 235 Symbolic Logic	
	PHL 301 Theory of Knowledge	
	PHL 303 Metaphysics	
	PHL 311 Philosophy of Language	
	PHL 315 Advanced Ethics	
	PHL 316 Political Philosophy	
	PHL 318 Bioethics	
	PHL 320 Philosophy of Science	
	PHL 323 Philosophy of Art	
	PHL 324 Philosophy of History	
	PHL 325 Philosophy of Religion	
	PHL 326 Philosophy of Law	
	PHL 332 Philosophy of Human Nature	
	PHL 350 Plato	
	PHL 361 Contemporary Continental Philosophy	
	PHL 371 Contemporary Anglo-American Philosophy	
	PHL 382 Contemporary American Philosophy	
	One seminar from PHL 410-419	3
	Total	**18**

PHL 101 three credits
Introduction to Philosophy

An introduction to philosophy as the persistent and methodical attempt to think clearly about universal problems of human life, such as ways of knowing and studies in value.

PHL 102 three credits
Philosophical Aspects of Feminism

An introduction to philosophical reasoning, analysis of arguments and developing of critical skills, through a consideration of various topics relevant to feminism. Topics may include: presuppositions about woman's nature, abortion, sex equality, affirmative action.

PHL 105 three credits
Special Topics in Philosophy

PHL 107 three credits
Thinking and Writing

Grammar and punctuation review, usage, vocabulary, documentation; the analysis and criticism of arguments, informal fallacies, meaning and definition, etc. The focal point of the course will be the reading and discussion of various philosophical essays (on such topics as the existence of God, human nature, education, love and death). Students will write expository and critical papers on this material which will be scrutinized in detail. Upon successful completion of this course the English Department will grant a waiver for ENL 101.

PHL 108 three credits
Critical Thinking

A course in informal logic concentrating on the evaluation of reasoning in "real life" contexts. The material for analysis will be drawn from newspaper editorials, political speeches, media articles, textbooks, advertisements, etc.; we will concentrate on arguments about issues of current public interest. The following topics will be emphasized: the identification of arguments; techniques for portraying argument structure; the evaluation and criticism of arguments; informal fallacies; the influence of language on clear thinking; advertising; the news media; the nature of rational belief; science, elementary research techniques. This course is designed for students with no previous background in philosophy. (Students who complete this course should not enroll in PHL 110).

PHL 110 three credits
Logic

An introduction to the methods and principles used to distinguish correct from incorrect reasoning. The course aims at imparting skill in identifying fallacies in reasoning and in using elementary formal techniques to analyze natural language arguments. In addition, such topics as the nature of meaning, the various uses of language, and the logic of science are discussed. (Students who complete this course should not enroll in PHL 108).

PHL 200 three credits
Special Topics in Philosophy

PHL 207 three credits
Introduction to Aesthetics

An introduction to philosophy through examination of paintings, photographs, poems, novels, and music in order to discover the styles of individual commitment through which people have tried to bring meaning into their lives. While attempting to grasp the aesthetic significance of each work of art, we will continually push toward an understanding of the philosophical dimension of human life as expressed in each work.

PHL 210 three credits
Socrates

A study of Socrates through an examination of two sorts of problems—the first (the so-called 'Socratic Problem') is the problem of evaluating the evidence which we possess about Socrates. This will proceed by reading an analysis of Aristophanes' Clouds, Xenophon's Memorabilia and Apology, some passages from Aristotle and the following 'early' dialogues of Plato: Apology, Crito, Euthyphro, the Charmides, Laches and Protagoras. The second problem to be dealt with is the extraction and evaluation of the main tenets of Socrates' philosophy, such as the claims that virtue is knowledge and that no one ever does wrong willingly.

PHL 215 three credits
Ethics I

A critical examination of normative theories of obligation and value. A philosophical examination of some moral problems: abortion, euthanasia, death penalty, sexual equality, reverse discrimination, pornography and censorship, violence, and economic injustice.

PHL 221 three credits
History of
Western Philosophy: Ancient

A study of philosophy from its origin with the pre-Socratics to the middle ages. The major portion of the course will be devoted to the philosophies of Plato and Aristotle.

PHL 222 three credits
History of
Western Philosophy: Modern

A study of the major philosophical movements (rationalism, empiricism and critical philosophy) in the 17th and 18th centuries. Philosophers studied include Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant. In addition to these major philosophers, consideration will also be given to the work of Rousseau, Pascal, Malebranche, the French Enlightenment.

PHL 223 three credits
History of Western Philosophy: Medieval

A study of the philosophical views developed from the 4th to the 14th centuries. The following Christian, Jewish and Islamic philosophers are studied: Augustine, Beothius, Scotus Erigena, Anselm, Abelard, John of Salisbury, Alfarabi, Avicenna, Averroes, Maimonides, Bonaventure, Bacon, Aquinas, Scotus, William of Ockham, Nicholas of Autrecourt, Marsilius of Padua.

PHL 224 three credits
Nineteenth Century Philosophic Thought

Writings selected from a century of great philosophical vitality and versatility. The culminating achievements of the western philosophical tradition and the first powerful stirring of major contemporary trends are fed by such currents as evolutionism, empiricism, idealism, positivism, existentialism, and dialectical materialism. Philosophers studied include Hegel, Fichte, Bradley, Schopenhauer, Comte, Mill, Spencer, Marx, Kierkegaard, and Nietzsche.

PHL 226 three credits
Marx

Designed as an introduction to the work of Karl Marx for those students who do not necessarily have philosophical backgrounds. The thoughts of Marx will be presented in two parts. At first, the more philosophical thought of the young Marx will be examined in its relation to Hegel and his followers up to Marx's "settling of accounts" with German philosophy. The second part will deal with the more scientific phase of Marx's thought expressed in *Das Capital*. Marx's own works will form the reading in the course.

PHL 227 three credits
Nietzsche

A critical analysis of the major philosophical themes in Nietzsche's thought. Emphasis is placed on Nietzsche's roots in the classical tradition. Readings include most of Nietzsche's major works as well as secondary criticism.

PHL 232 three credits
Inductive Inference
Prerequisites: PHL 110, 235, or consent of instructor

A critical examination of theories about the structure and justification of inductive reasoning. Included will be a study of theories of probability and of the nature of causation.

PHL 235 three credits
Symbolic Logic
Prerequisite: PHL 110 or consent of instructor

A study of the formal techniques of sentential and predicate logic. The course aims at imparting skill in applying logic to natural language arguments and in recognizing and constructing correct deductions and refutations. Philosophical issues pertaining to the application of logic to natural language as well as elementary results of metalogic are discussed.

PHL 300 three credits
Special Topics in Philosophy

PHL 301 three credits
Theory of Knowledge
Prerequisite: Semester course in Philosophy or consent of instructor

An analysis of the scope and structure of knowledge and its relation to other human activities.

PHL 303 three credits
Metaphysics
Prerequisite: Semester course in Philosophy or consent of instructor

A study of some representative philosophical views on the general structure and ultimate explanation of reality. Some topics considered will be causality, chance and necessity, the problem of first cause. Consideration will also be given to some objections to metaphysics as a philosophical undertaking.

PHL 311 three credits
Philosophy of Language
Prerequisite: Semester course in Philosophy or consent of instructor

An examination of how language relates to the world and to thought. Topics will include the nature of meaning, truth, metaphor, and linguistic competence; speech act theory; and the relation of logic to syntax and semantics. Readings will be from contemporary linguistics as well as from philosophy.

PHL 315 three credits
Advanced Ethics
Prerequisite: PHL 215

Concentrates on the meaning of ethical terms, the objectivity of moral judgments and the justification of these moral judgments. The Is-Ought Question is studied at some length, as well as the possibility of an ontology of morals proposed by contemporary metaphysicians.

PHL 316 three credits
Political Philosophy
Prerequisite: Semester course in Philosophy or consent of instructor

A study of some of the major themes and problems traditionally considered by political philosophers. A consideration of what constitutes a political problem and a discussion of the role of philosophy with regard to such problems. The course thus combines an analytical and an historical approach in the effort to relate traditional political thought to contemporary problems.

PHL 317 three credits
Ethics and Health Care Professionals
Prerequisite: Junior standing in Medical Laboratory Science, Nursing, Psychology, or Sociology

An examination of the ethical aspects of the health care professions, and the impact of the ethical issues on the professional's life. Topics include: responsibility, conscience, professional codes of ethics, privacy, informed consent, access to health care, loss, and death.

PHL 318 three credits
Bioethics
Prerequisite: PHL 215 or its equivalent; or consent of instructor

A study of the ethical issues related to death and dying, behavior control, genetic counseling and genetic engineering, and population limitation. The work of specific research projects and institutes will be studied.

PHL 320 three credits
Philosophy of Science
Prerequisite: Semester course in Philosophy or consent of instructor, or third year in Mathematics or a science major.

A critical analysis of science and its methods, a study of the justification and the range of scientific knowledge.

PHL 323 three credits
Philosophy of Art
Prerequisite: Semester course in Philosophy or consent of instructor

Continues on a more advanced level the development of a theory of art already begun in the introduction to aesthetics. Themes to be discussed include the nature of form and expression in art, the nondiscussive character of art, the similarities and differences between the artist's relation to the work of art and the spectators', the relation between art and subjectivity, the difference between the linguistic and visual arts, the social function of art. The works of a few major philosophers will be compared to give students alternative points of view.

PHL 324 three credits
Philosophy of History
Prerequisite: Semester course in Philosophy or consent of instructor

This course will consider various theories that have been proposed for interpreting history, as well as recurrent problems about the structure of historical explanation, the possibility of objectivity in history, and the relationship between history and the social sciences.

PHL 325 three credits
Philosophy of Religion
Prerequisite: Semester course in Philosophy or consent of instructor

Analytical and constructive study of central concepts and essential manifestations of religion. Both historical and contemporary readings are required.

PHL 326 three credits
Philosophy of Law
Prerequisite: Semester course in Philosophy or consent of instructor

Specific problems about freedom, justice, responsibility and punishment will be considered, as well as problems of legal reasoning, analytical problems of definition and issues of the inter-relation of law and morality. Intellectually and practically important especially for students who are considering law school or politics.

PHL 330 (BIO 330) three credits
Evolutionary Approaches to Epistemology
Prerequisites: BIO 113, 210, 437 or equivalent; and PHL 301 or equivalent

A critical exploration of the interaction between Darwinian evolutionary biology and traditional epitemology and the impact of the two fields on one another. The course will demonstrate, with the students as active participants, the nature and fertility of an interdisciplinary inquiry.

PHL 332 three credits
Philosophy of Human Nature
Prerequisite: Semester course in Philosophy or consent of instructor

An examination of the major views on the nature of human beings. The mind-body problem and the problem of freedom will be discussed.

PHL 350 three credits
Plato
Prerequisite: PHL 221 or consent of instructor

An examination of the major themes in Plato's philosophy. Readings will be taken from dialogues of all three "periods" but emphasis will be placed upon the "middle dialogues."

PHL 361 three credits
Contemporary Continental Philosophy
Prerequisite: Semester course in Philosophy or consent of instructor

A study of the various currents of continental European thought in this century with special concentration upon the forerunners and representatives of phenomenology and existentialism. Kierkegaard, Nietzsche, Husserl, Jaspers, Heidegger, Merleau-Ponty, and Sartre, among others, will be read.

PHL 371 three credits
Contemporary Anglo-American Philosophy
Prerequisite: Semester course in Philosophy or consent of instructor

An examination and critique of 20th century analytic philosophy, whose dominant theme has been that philosophical prob-lems are best understood as problems regarding the use of language. Among the writers we will discuss are Moore, Russell, Wittgenstein, Ayer, Carnap, Hemple, Ryle, Austin, Baier, Quincy, Kripke, Putnam, and Rorty.

PHL 382 three credits
Contemporary American Philosophy
Prerequisite: Semester course in Philosophy or consent of instructor

The major positions since the late 19th century (pragmatism, idealism naturalism and process philosophy) will be studied through selected texts from Peirce, James, Royce, Dewey, Santayana and Whitehead.

PHL 410-419 three credits each
Seminars
Prerequisite: Major or Minor in Philosophy or consent of instructor

Intensive study of (1) major philosophers, such as Plato, Aristotle, Kant, Santayana, Whitehead, Wittgenstein, or (2) philosophers related by a common theme in development, such as Aquinas, Scotus, Ockham, or Locke, Berkeley, Hume, or Descartes, Spinoza, Leibnitz, or (3) current philosophical work.

PHL 410
Hegel

PHL 411
Rationalists

PHL 412
Kant

PHL 413
Aristotle

PHL 415
Sartre

PHL 416
Aquinas

PHL 417
Thinking Machines

PHL 418
Freud and Philosophy

PHL 419
Heidegger/Plato

PHL 420 three credits
Directed Honors Thesis
Prerequisite: Major in Philosophy and 3.0 average in philosophy courses

Departmental guidance for a thesis developing out of the primary and continuing interest of the student.

PHL 495 three credits
Independent Study
Prerequisite: Philosophy major

PHL 496 three credits
Directed Study

PHL 900
Contract Learning

Physics

The fields of interest in physics are remarkably broad in scope. Physicists may be involved in theoretical studies, in experimental research, or in the development of new devices to uncover the mysteries of nature; they may probe the depths of space, design and program computers, solve environmental problems, teach science, or investigate the structure of nuclei. Research in physics has often paved the way for technological innovations such as lasers, fusion power, solar cells, diagnostic techniques in medicine, and solid-state electronics. The materials science option of the B.S. degree in physics provides students with the strongest possible preparation for entry into graduate programs.

The department offers courses in classical mechanics, quantum mechanics, electricity and magnetism, astrophysics, relativity, environmental physics, solid-state physics, and earth science, as well as several courses dealing with the impact of science on society. Students are encouraged to participate in research programs in particle physics, theoretical physics, liquid crystals, physics education, and astronomy.

The department has a wide array of modern laboratory equipment, including computers, lasers, x-ray apparatus, nuclear magnetic resonance device, and an observatory-based telescope with electronic CCD camera. Faculty and students also have access to the particle accelerators at the Brookhaven National Laboratory on Long Island.

Faculty and Fields of Interest

Zvi Bar-Yam elementary particles

Robert Bento science and society, solar energy, environmental physics

John P. Dowd elementary particles

Kazi Haq solid state and thin film physics

Alan Hirshfeld astrophysics, observational astronomy

Jong-Ping Hsu symmetry principles and gauge field theories

Wolfhard Kern elementary particles, physics education

George Yan-Chok Leung theoretical particle physics and astrophysics

Donald S. Presel physics education

John Russell elementary particles, physics education

Paul Ukleja (chairperson) liquid crystals, nuclear magnetic resonance

Physics Major
BS degree

Requirements during the first two years include the basic courses in mathematics and physics. Throughout this period students should consult frequently with their departmental advisors and familiarize themselves with department activities such as the meetings and special lectures of the Physics Club.

Aided by their advisors, at the beginning of the junior year students should plan a course of study for the completion of their college program. The advanced courses selected during the third and fourth years should be consistent with the students' interests and goals. These interests may be in physics or in allied fields such as astronomy, computer science, environmental science, biophysics, meteorology and oceanography.

Students are encouraged to arrange supervised independent study as well as work on individual research projects, and there are frequent opportunities for student participation in faculty research.

The department also offers a graduate program leading to the Master of Science degree in physics and, in conjunction with UMass Amherst, offers a cooperative Ph.D. program.

Career plans of the physics major may include graduate study in physics, materials science, biophysics, geophysics, medical physics, or in various branches of applied science or engineering. Other physics majors may wish to establish careers in industrial or government laboratories, or in teaching in secondary schools. A major in physics is sometimes selected by students wishing to enter the professions of law, business or medicine with the competitive edge that a good physics background can provide.

Physics Major
Conventional Option

Requirements

Semester Credits

Of the 120 credits needed for a Bachelor of Science degree in physics, the department requires 45 credits in physics, 15 credits in specified courses in mathematics and computer science, and six credits in courses in a second science or mathematics or engineering. The recommended course sequence of required courses is given below. Of the 120 credits, 30 must be in the upper-division.

First Year		**First**	**Second**
PHY 109, 110	Freshman Seminar	1	1
PHY 115	Introduction to Classical Physics	3	
PHY 113	Classical Physics I		4
MTH 111, 112	Analytic Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities/Social Sciences Electives	3	3
		14	**15**
Second Year	(Recommended Sequence)		
PHY 114	Classical Physics II	4	
PHY 213	Applied Modern Physics		3
PHY 225, 226	Introductory Experimental Physics I, II	2	3
MTH 211	Analytic Geometry and Calculus III	4	
PHY 234	Intermediate Mathematical Physics		3
	Humanities/Social Sciences, Literature	3	3
	Second Science or Mathematics or Engineering*	3	3
		16	**15**

*Students must take a total of six credits of science or mathematics or engineering courses offered by the following departments: biology, chemistry, computer and information science, mathematics, civil engineering, electrical computer engineering or mechanical engineering. 200-level physics courses in the area of astrophysics are also eligible for fulfilling this requirement. The courses must be acceptable for credit to students majoring in the respective science or engineering departments, and be approved by the student's advisor.

Please note:
Each student is required to consult with his or her advisor before registering for courses in the third and fourth year of the physics major.

Third Year	(Recommended Sequence)		
PHY 341, 342	Modern Physics and Quantum Mechanics I, II	3	3
	Humanities/Social Sciences or Literature	3	3
	Physics Electives (minimum required)*	3	3
	Additional Physics Electives or Free Electives	6	6
		15	**15**

*Upper-division Laboratory requirement: a minimum of 6 credits must be selected from the laboratory courses PHY 321, 322, 421, 422 - included in total of minimum required physics electives.

Fourth Year	(Recommended Sequence)		
	Humanities/Social Sciences or Literature	3	3
	Physics Electives (minimum required)	6	3
	Additional Physics Electives or Free Electives	6	9
		15	**15**
		Total credits:	**120**

Physics Electives

A minimum of 45 credits in physics are required for graduation.

PHY 251, 252
Elementary Astrophysics I, II
PHY 300, 301
Undergraduate Seminar
PHY 313*
Mechanics
PHY 314*
Wave Motion
PHY 321*, 322*
Electronic Devices and Circuits
PHY 351, 352
Physics of the Environment
PHY 363
Intermediate Astrophysics
PHY 411*, 412*
Electric and Magnetic Fields I, II
PHY 421*, 422*
Advanced Physics Laboratory I, II
PHY 441
Statistical Thermodynamics
PHY 442
Elements of Solid State Physics
PHY 495
Independent Study
PHY 480
Undergraduate Research
PHY 490
Senior Thesis
PHY 531*
Quantum Mechanics I

*

Students who intend to continue their studies in physics at the graduate level should consult with their advisors. A typical course selection for students planning on attending graduate school is indicated above by a star after the course number.

Physics Major
Materials Science Option

Recommended Courses
* Required courses for materials science option

Semester Credits

Materials science is a rapidly developing field that includes theoretical and experimental studies relating to solid state microelectronics, liquid crystals, superconductors, optical fibers, metallic alloys, ceramic materials, gravity-free processing, and other advanced applications.

			First	Second
First Year				
PHY 115		Introduction to Classical Physics	3	
PHY 113		Classical Physics I		4
MTH 111, 112*		Analytic Geometry and Calculus I, II	4	4
CHM 151, 152*		Principles of Modern Chemistry I, II	3	3
ENL 101, 102		Critical Writing and Reading I, II	3	3
		Humanities/Social Science	3	3
			16	**17**
Second Year				
PHY 114*		Classical Physics II	4	
PHY 213*		Applied Modern Physics		3
PHY 225*, 226		Introductory Experimental Physics I, II	2	3
PHY 234*		Intermediate Mathematical Physics		3
MTH 211*		Analytic Geometry and Calculus III	4	
EGR 231*		Materials Science	3	
		Humanities/Social Science, or Literature	3	3
		Free Elective		3
			16	**15**
Third Year				
PHY 321, 322*		Electronic Devices and Circuits I, II	3	3
PHY 341, 342*		Modern Physics & Quantum Mech I, II	3	3
CHM 315, 316*		Physical Chemistry I, II	4	4
		Humanities/Social Science or Literature	3	3
		Free Electives	3	3
			16	**15**
Fourth Year				
PHY 441		Statistical Thermodynamics	3	
PHY 442		Elements of Solid State Physics		3
		Humanities/Social Science or Literature	3	3
		Free Electives	6	6
		Physics Electives	3	3
			15	**15**
		Total credits:		**125**

Recommended Electives: Materials Science Option

CIS 111
Computer Programming (PASCAL)
CIS 260
FORTRAN
ECE 231
Electrical Material Science***
EGR 232
Engineering thermodynamics
PHY 313**
Mechanics
PHY 314**
Wave Motion
PHY 411, 412**
Electromagnetic Fields
MNE 471
Physical Metallurgy
PHY 531**
Quantum Mechanics I
CHM 523
Thermodynamics

**
Recommended for graduate-school bound students

***
Requires a minimal knowledge of circuit theory — PHY 321 is sufficient

Physics Minor

In the course of their studies, many UMass Dartmouth students acquire a background in basic physics and mathematics which enables them to take upper division physics courses. A number of these students may elect to extend their study of physics into more advanced areas. A major goal of the physics minor is to provide encouragement and formal recognition for these students. It is often desirable to enhance understanding and mastery of a broader range of subject than is provided in the student's major field alone.

Another goal of the program is to establish the physics background needed to enter interdisciplinary fields which have a significant physics content. This would be particularly useful for students majoring in fields such as Chemistry, Mathematics, Engineering, and Computer Science. Students considering a career in fields such as Biophysics or Medical Physics would benefit from a minor in physics. To accommodate these students, the Physics Department offers a minor program.

Students who wish to enter this program must obtain approval of the Physics Department chairperson, preferably before enrolling in upper-division courses.

Requirements

The following courses:	Credits
PHY 113 Classical Physics I	4
PHY 114 Classical Physics II	4
PHY 213 Applied Modern Physics	3

An additional nine credits selected from the following upper division courses:

PHY 300 Undergraduate Seminar	9
PHY 313 Mechanics	
PHY 314 Wave Motion	
PHY 341, 342 Modern Physics and Quantum Mechanics I, II	
PHY 351, 352 Environmental Physics I, II	
PHY 363 Intermediate Astrophysics	
PHY 411, 412 Electric and Magnetic Fields I, II	
PHY 441 Statistical Thermodynamics	
PHY 542 Elements of Solid State Physics	
PHY 531 Quantum Mechanics I	
Total	**20**

Certain other graduate courses may be substituted for the listed upper division courses, only with the approval of the Physics Department.

A student wishing to minor in physics must also acquire a substantial background in calculus (MTH 111, 112, and 211 or equivalent are required) and must meet the university requirements of cumulative grade point averages and total number of credits. Specifically, a minimum of 54 credits is needed before a minor can be selected. The cumulative grade point average, at the time of entry into the minor program, must be at least 2.0 and must be at least 2.5 for courses taken in the student's major field. In addition, the Physics Department requires that the cumulative grade point average in physics courses submitted for recognition of completion of a minor in physics be 2.0 or above.

PHY 101 three credits
Introduction to Physics I
Pre- or Corequisite: MTH 101 recommended

An introductory course in physics covering mechanics, heat and thermodynamics. Emphasis is on fundamentals and their application to practical problems. Non-calculus presentation.

PHY 102 three credits
Introduction to Physics II
Pre- or Corequisite: MTH 102 recommended

Continuation of PHY 101. The topics covered include vibrations, sound, optics, electricity and magnetism. Non-calculus presentation.

PHY 103 one credit
General Physics Laboratory I
2 hours laboratory

A laboratory course that accompanies PHY 101. An introduction to experimental techniques. Experiments in mechanics.

PHY 104 one credit
General Physics Laboratory II
2 hours laboratory

A laboratory course that accompanies PHY 102 or PHY 108. Experiments in optics, electricity and modern physics using electrical measurement techniques.

PHY 107 three credits
Basic Physics I

An introductory course in physics covering mechanics, wave motion and heat. Emphasis is on principles, applications and the development of problem-solving ability. Non-calculus presentation.

PHY 108 three credits
Basic Physics II
Prerequisite: PHY 107

Continuation of PHY 107. The study of electricity and magnetism, optics, atomic and nuclear physics. Non-calculus presentation.

PHY 109, 110 one credit
Freshman Seminar
1 hour weekly

Seminar series on topics of current interest to physicists.

PHY 113 four credits
Classical Physics I
Includes 2-hour weekly laboratory
Prerequisite: MTH 111

A calculus based introduction to classical mechanics emphasizing problem solving. Topics include particle kinematics and dynamics, concepts of work, energy and momentum, rotational motion and oscillations.

PHY 114 four credits
Classical Physics II
Includes 2-hour weekly laboratory
Prerequisite: MTH 112

Continuation of PHY 113. Study of electric and magnetic fields, electric potential, capacitance and inductance, elementary circuits, electromagnetic oscillations, and optics.

PHY 115 three credits
Introduction to Classical Physics

This course treats topics in classical physics from the areas of waves, optics, and thermodynamics.

PHY 151 three credits
Introductory Astronomy

An introduction to astronomy that surveys the content, structure, and scale of the cosmos as it is presently known. Properties of the solar system, the sun and stars, exotic objects such as pulsars and black holes, galaxies, quasars, and the universe as a whole are discussed. Each semester a different topic of current interest in astronomical research will also be covered. Evening observing sessions will be arranged.

PHY 161 three credits
Science, Technology, and Society I

Interaction of science and technology with the individual and contemporary society. Non-mathematical presentation and in-depth study, during each term, of a major development in science, considered in its historical and social contexts.

PHY 162 three credits
Science Technology and Society II: The Environment

This course studies current environmental issues and their relations to technological choices. For example, air and water quality are examined in relation to the use of various renewable and non-renewable energy resources. The course is non-mathematical and satisfies 3 credits of the Natural Science requirement.

PHY 163 three credits
Energy and Energy Alternatives
Prerequisite: PHY 161 or equivalent

A non-mathematical yet quantitative survey of contemporary energy questions. Energy sources such as coal, oil, natural gas, solar energy, and wind power are examined. Energy conservation techniques are examined in detail.

PHY 171 three credits
Planet Earth and its Resources I

Origin and history of earth; composition and structure of its interior, crust, oceans, and atmosphere. Plate tectonics and sea floor spreading; seismology, vulcanism and earthquakes; magnetism of earth. Forces shaping earth's surface, faults and folds, erosion, sedimentation and weathering. Earth materials: soil, minerals and ores, igneous, sedimentary, and

metamorphic materials. Earth resources: salts and fertilizers, chemical supplies, and building materials.

PHY 172 three credits
Planet Earth and its Resources II

Earth resources: rare and abundant metals and their uses, history of life on earth, the fossil record. Energy and fossil fuels. Nuclear energy sources, uranium, plutonium, and deuterium. Water and its distribution, rate of use, and pollution. Atmospheric-oceanic circulation and heat balance. Weather and climate. Humanity as agent of change on planet Earth. Outlook on future.

PHY 180 three credits
Scientific and Social Aspects of Solar Energy

The development of solar energy in the U.S. Individual sources both direct and indirect (biomass, wind, etc.) are examined as to current state of the art and future potential. Different development schemes such as centralized or distributed modes are considered. The goal of the inquiry will be to determine the optimum paths for future development.

PHY 182 three credits
Introduction to the Weather

The fundamentals of atmospheric science. Basic physical principles which affect the general circulation of the atmosphere and their relation to the day-to-day sequence of weather events are discussed. As part of the course, students generate short-term forecasts using real time information available by computer from the internet.

PHY 213 three credits
Applied Modern Physics
4 classroom hours weekly
Prerequisite: PHY 114

A first course in modern physics designed for engineering and physics students. It deals with basic atomic and nuclear physics and emphasizes the applied areas of modern physics that are likely to be of use in practical engineering applications.

PHY 225 two credits
Introductory Experimental Physics I
1 hour lecture, 3 hours laboratory

Introduction to techniques, equipment and data analysis in experimental physics. Develops skills in the use of instruments such as the oscilloscope, multimeter, electrometer and radiation detector; error estimation and propagation; data analysis using computer spreadsheets; and laboratory notetaking and reporting. The lectures introduce the theory of error analysis, interpretation of experimental data and scientific ethics. Experiments include wave propagation and interference, radioactive decay and absorption, the photoelectric effect and the hydrogen spectrum.

PHY 226 three credits
Introductory Experimental Physics II
2 hours lecture, 3 hours laboratory
Prerequisite: PHY 225 or permission of instructor

Lecture/laboratory course with experiments on topics in PHY 214, including thermodynamics, waves, and optics. Students investigate the operation of sensors (temperature, force, light) and design experiments. The lecture portion introduces the computer as a tool in physics for acquiring, analyzing and displaying experimental data, and computers are used for solving differential equations and simulating dynamical problems.

PHY 234 three credits
Intermediate Mathematical Physics
3 hours weekly
Prerequisites: PHY 114, MTH 211

The development of the mathematical and computational tools needed for solving more advanced physics problems. Topics are selected primarily from classical mechanics and electricity and magnetism.

PHY 251 three credits
Elementary Astrophysics I
Prerequisite: One year of science or mathematics or permission of instructor

Basic concepts and modern developments in astrophysics at an elementary level. It can be used to fulfill the science requirement. Subjects to be discussed range from the solar system and the structure and evolution of the stars to galaxies and the expanding universe. Observing techniques are also taught using the observatory telescope.

PHY 252 three credits
Elementary Astrophysics II
Prerequisite: PHY 251 or permission of instructor

A continuation of PHY 251, this course consists of a more detailed analysis of subjects introduced the preceding semester. Among the topics to be considered are cosmology and high-energy astrophysics including pulsars, quasars and black holes. More advanced observing techniques are introduced, including astrophotography and electronic imaging.

PHY 261 three credits
Physics of Music

Descriptive acoustic course on the application of physical principles in explaining and describing many diverse phenomena. No mathematics beyond simple algebra will be used. Topics include properties of simple vibrators; waves on strings and in other structure;

anatomy and functions of the ear: scales, temperaments, and harmony; acoustical environments: production and perception of musical tones in singing voice, lip reed, mechanical reed, air reed instruments, pipe organ, bowed string instruments, percussive string instruments, percussive instruments; electronic music and computer music systems.

PHY 300, 301 three credits
Undergraduate Seminar

A seminar conducted at the sophomore-junior level on topics in contemporary physics, astrophysics and related topics.

PHY 313 three credits
Mechanics
Prerequisites: PHY 234, MTH 211

Mechanics of particle systems including central force motion and two body scattering, accelerating coordinate systems, rigid body kinematics and dynamics, coupled oscillators, small vibrations and normal modes, introduction to Lagrangian methods.

PHY 314 three credits
Wave Motion
Prerequisites: PHY 234, MTH 211

Wave phenomena in mechanics, optics and acoustics. A study of the wave equation and its applications with emphasis on the general properties of waves. Interference, diffraction, reflection, refraction and polarization.

PHY 321 three credits
Electronic Devices and Circuits I
2 hours lecture, 3 hours laboratory
Prerequisites: PHY 114, MTH 211

A lecture and laboratory course in electronic circuit theory covering both active and passive devices and elementary networks.

PHY 322 three credits
Electronic Devices and Circuits II
2 hours lecture, 3 hours laboratory
Prerequisite: PHY 321

A continuation of PHY 321 with emphasis on applications using the elements and techniques of modern research, including integrated-circuit devices, digital circuits, and computer interfacing.

PHY 341 three credits
Modern Physics and Quantum Mechanics I
Prerequisite: PHY 213

Experimental evidence leading to the development of modern physics, Bohr-Sommerfeld theory of the hydrogen atom. Special relativity, introduction to the Schroedinger equation with solutions to simple problems leading to the study of one electron atoms. Electron spin, magnetic moment, and the fine structure in hydrogen spectra.

PHY 342 three credits
Modern Physics and Quantum Mechanics II
Prerequisite: PHY 341

Continuation of PHY 341. Further applications of the principles of quantum mechanics with applications to many particle systems. Quantum statistics, atomic spectra of many electron atoms, nuclear structure, nuclear models and scattering.

PHY 351 three credits
Physics of the Environment I
Prerequisites: A one year course in physics and MTH 101 or 131

A course applying scientific concepts and simple mathematical modeling (noncalculus) to environmental problems. Major topics addressed include the cycling of various substances (water, carbon, sulfur, etc.) in the natural environment and effects of anthrogenic perturbations on them.

PHY 352 three credits
Physics of the Environment II
Prerequisite: PHY 351

Continuation of PHY 351. Acid rain, climatology and the "greenhouse effect". Survival of populations. More elaborate mathematical modelling, some of which involves a little calculus, but a knowledge of calculus is not a prerequisite.

PHY 363 three credits
Intermediate Astrophysics
Prerequisites: PHY 251, 252; or permission of instructor.

This course explores in greater detail topics in stellar and galactic astronomy that were introduced in PHY 251-252. Variable stars, binary stars, star clusters, and galactic structure will be discussed with an emphasis on areas of current astronomical research. Astronomical imaging and image-processing techniques will be taught using equipment at the observatory.

PHY 411 three credits
Electric and Magnetic Fields I
Prerequisite: PHY 234

Study of the fields of static charges and constant currents, the properties of dielectric and magnetic materials, and magnetic induction leading to the formulation of Maxwell's equations.

PHY 412 three credits
Electric and Magnetic Fields II
Prerequisite: PHY 411

Continuation of PHY 411. Development of the wave equation. Electro-magnetic waves in space and in matter. Study of radiation from time varying charge and current distributions.

PHY 421 three credits
Advanced Physics Laboratory I
1 hour lecture, 4 hours laboratory
Prerequisites: PHY 213, 226

A laboratory course designed to acquaint the student with current experimental techniques in physics and methods of data analysis.

PHY 422 three credits
Advanced Physics Laboratory II
1 hour lecture, 4 hours laboratory
Prerequisite: PHY 421

A continuation of PHY 421. Projects in experimental physics with emphasis on independent work by the student.

PHY 430 three credits
Methods and Strategies for Physics Teachers
Prerequisites: PHY 113, 114, 213, 234

This course is designed for Physics teachers. It emphasizes the use of varied teaching strategies and methods to cater to different learning styles of students. Attention is given to analytic and graphic as well as intuitive presentation of physics concepts and phenomena. Teaching techniques including audio-visual aids, demonstration and hand-on experiments are used to enhance the learning experience.

PHY 441 three credits
Statistical Thermodynamics
Prerequisite: PHY 213

The laws of thermodynamics and their interpretation based on the micro-scopic behavior of matter. Entropy and probability, equilibrium, reversibility, thermodynamic functions, phase changes, quantum statistics. Applications to problems in solid state physics.

PHY 442 three credits
Elements of Solid State Physics
Prerequisite: PHY 342

Basic concepts of condensed matter physics, crystal structure, crystal diffrac-tion, lattice vibrations theory of metals, semiconductors and insulators, magnetic properties of solids.

PHY 480 three credits
Undergraduate Research
Prerequisite: Permission of department

Individual work under the supervision of a faculty member on an experimental, theoretical, or literature review project in physics. This work may lead to a senior thesis project or may be concluded by a written report at the end of the term.

PHY 490 three credits
Senior Thesis

Intensive individual work on an experi-mental or theoretical problem in physics under the guidance of a staff member. The special project is to be selected at the beginning of the senior year. Credit will be assigned in the second semester.

PHY 495 three credits
Independent Study
Prerequisite: Permission of Department

Individual study of selected topics in physics under the guidance of a faculty advisor. This course is suitable for study of physics subfields of special interest to individual students and faculty members.

PHY 496 three credits
Directed Study

PHY 900
Contract Learning

Graduate Courses in Physics

Note: 500-level courses are for graduate students and advanced undergraduates. 600-level courses are for graduate students only. The offical list of graduate courses is published in the Graduate Catalogue.

PHY 501 three credits
Graduate Laboratory I
Prerequisite: Graduate standing in Physics

A laboratory course designed to acquaint graduate students in physics with current experimental techniques in physics. It will emphasize electronics and electrical measurements.

PHY 502 three credits
Graduate Laboratory II
Prerequisite: Graduate standing, PHY 501, or permission of instructor

Introduction to laboratory techniques in a context of classical and modern physics experiments.

PHY 531 three credits
Quantum Mechanics I

Fundamentals of quantum mechanics. Schroedinger equation, operator techniques, angular momentum, central force motion, spin, matrix representations, and the theory of measurement are studied.

PHY 611 three credits
Electromagnetic Theory I

Boundary value problems in electrostatics, Green's functions and eigen function expansions. Also examined are Maxwell's equations, momentum and energy of the electromagnetic field, radiation, multipole expansions, scattering, special relativity and Lagrangian formulation, radiation from moving charge, radiation reaction. (Formerly PHY 522.)

PHY 612 three credits
Electromagnetic Theory II
Prerequisite: PHY 611 or equivalent

Study of simple radiating systems, scattering and diffraction electromagnetic waves, radiation by moving charges, special theory of relativity, Lorentz transformation, covariant formulation of Maxwell's equations, relativistic particle dynamics, scattering of charged particles, radiation damping and self-fields of a charged particle.

PHY 615 three credits
Theoretical Mechanics and Relativity

The Lagrangian and Hamiltonian formulation of Newtonian mechanics. Also covered are variational principles, transformation theory, Poisson brackets, Hamilton-Jacobi theory, special relativity and the covariant formulation of particle mechanics. General relativity is introduced. (Formerly PHY 521.)

PHY 616 three credits
Graduate Seminar

A seminar devoted to the discussion of topics in modern physics and related subjects. (Formerly PHY 575.)

PHY 621 three credits
Advanced Mathematical Physics I

Mathematical methods in physics. Linear algebra, complex variable theory, eigenfunction expansions and orthogonal functions, and the special functions of mathematical physics are studied. (Formerly PHY 511.)

PHY 622 three credits
Advanced Mathematical Physics II

Partial differential equations, integral equations, and Green's functions. Generalized functions, calculus of variations, and group theory are studied. (Formerly PHY 512.)

PHY 631 three credits
Quantum Mechanics II

Radiative processes. Other topics included are the theory of scattering, variational principles, symmetry and invariance principles, and second quantization. Relativistic quantum mechanics and field theory are introduced. (Formerly PHY 532.)

PHY 632 three credits
Advanced Quantum Mechanics

Further training in theoretical physics on a graduate level. Explores in depth topics discussed in PHY 531 and PHY 532. (Formerly PHY 533.)

PHY 635 three credits
Solid State Physics I

Basic concepts of solid state physics, including crystal structures, lattice vibrations, ionic crystals. Also examined are dielectric and optical properties of insulators, ferroelectrics, free electron theory of metals, energy bands, semiconductors. (Formerly PHY 541.)

PHY 636 three credits
Solid State Physics II

Theory of conductivity and related effects. Rectification and transistors, imperfection in crystals, plastic deformation color centers, optical properties of solids, and theory of magnetism are also studied. (Formerly PHY 542.)

PHY 641 three credits
Statistical Mechanics
Prerequisite: PHY 213

Thermodynamics and its statistical interpretation. Canonical, Micro-canonical, and grand canonical ensembles. Boltzmann, Fermi and Bose distributions, and their applications to equilibrium and transport phenomena. Phase equilibrium.

PHY 651 three credits
Nuclear Physics

A discussion of topics in nuclear physics including nuclear forces, nuclear models, nuclear reactions, and nuclear decay. (Formerly PHY 551.)

PHY 652 three credits
Elementary Particle Physics

Relativistic kinematics of particle motion, phenomenological and dynamical theories of particle interactions and classification of particles according to symmetry principles. (Formerly PHY 552.)

PHY 680 three credits
Graduate Research

Directed research on a project in experimental, theoretical, or applied physics under the supervision of a faculty sponsor. The research may lead to a graduate thesis project or may be concluded by a written report at the end of one or two terms. (Formerly PHY 580.)

PHY 690 not to exceed 6 credits
Graduate Thesis

Thesis research on an experimental or theoretical project in physics under a thesis advisor. Project will usually be selected at the beginning of the second year of graduate study. Submission of a formal thesis is required at the conclusion of this course. (Formerly PHY 590.)

PHY 695 three credits
Independent Study

Individual study under the supervision of a faculty member in an area of physics that is not otherwise part of the graduate course offering. (Formerly PHY 595.)

PHY 696 three credits
Directed Study
(Formerly PHY 596.)

Political Science

Political Science offers a variety of courses in the major subfields of the discipline: American politics, comparative politics, international relations, political theory, public administration, and public policy. The program emphasizes the development of analytical and communications skills linked to a substantive understanding of politics, governments, and administration. These skills and a knowledge of political science are useful in a broad range of career pursuits.

UMass Dartmouth Political Science graduates are pursuing successful careers in state, local, and federal government administration, social work, urban planning, the diplomatic service, and business. Some have careers in politics as elected officials, legislative aides, or in lobbying, campaign management, and polling analysis. The departmental program offers several opportunities for student internships that provide practical experience in many of these areas. Finally, many of the department's graduates enroll in some of the nation's leading law, graduate, and professional schools where they go on to careers in college teaching, law, and corporate management.

The Political Science faculty is active in research, government, and community service, and publishes many books and articles in the several subfields of the discipline.

Faculty and Fields of Interest

Shaukat Ali public administration, comparative politics (South Asia), political theory (non-western)

Naseer H. Aruri international relations, comparative politics (Middle East, revolutionary change)

Clyde W. Barrow political theory (American, European), political economy, public policy (higher education, fiscal)

John J Carroll American politics (institutions, state governments), public law

Jean Doyle (chairperson) comparative politics (China, Communist systems) political economy, public policy (women)

Robert Hackey public policy (health care, implementation, regulation), American politics, methodology

Rita Duarte Marinho American politics (group dynamics, political behavior), women and politics, methodology

Philip H. Melanson public policy, American politics (governmental secrecy, political violence)

Robert L. Piper American politics (institutions, political thought), public policy (elder affairs)

Robert J. Wilder public policy (ocean, coastal, environmental), public law, public administration

Political Science Major
BA degree

Requirements

Political Science majors must complete 37 credits in political science. In addition, majors must satisfy specific cognate requirements in selecting their distribution courses for the Bachelor of Arts degree.

The following courses are required:

	Credits
PSC 101 Introduction to American Politics	3
PSC 149 Political Science Laboratory	1
PSC 151 Introduction to Comparative Politics	3
PSC 200-level elective	3
PSC 249 Research Methods in Political Science	3
One course in Political Theory from the following list: PSC 320 American Political Thought I PSC 321 American Political Thought II PSC 351 Modern Political Thought PSC 352 Classical Political Thought PSC 353 Non-Western Political Thought PSC 354 Marxian Political Theory PSC 357 Contemporary Political Thought	3
PSC 300-level electives	12
PSC 305 Internship	3
PSC 400-level Research Seminar*	6
Total	**37**

* One each in junior and senior years

Political science majors must also take the following courses which complement and support the major concentration. These courses will satisfy a portion of the distribution requirements in social sciences and humanities in the College of Arts and Sciences:

	Credits
HST 115 History of the United States I	3
HST 116 History of the United States II	3
ECO 231 Microeconomics	3
ECO 232 Macroeconomics	3
One additional course with a non-western focus in a discipline other than Political Science	3
Total	**15**

Political Science Minor

Students choosing to Minor in Political Science must achieve at least a 2.5 average in all Political Science courses and a 2.0 cumulative grade point average. Students must formally declare the minor by the end of their fifth semester and must have completed 54 credits. Appropriate forms will be available from faculty advisors in the Political Science department.

Requirements

The minor in political science consists of 22 credits. Minor course credits must be taken with at least three different professors.

The following courses are required:

	Credits
PSC 101 Introduction to American Politics	3
PSC 149 Political Science Laboratory	1
PSC 151 Introduction to Comparative Politics	3
PSC 249 Research Methods in Political Science	3
PSC 300-level electives	9
PSC 400-level Research Seminar	3
Total	**22**

Political Science Honors Program

The Political Science Department offers an Honors Program to qualified majors. To be admitted to the program, students must demonstrate outstanding scholarship during their first five semesters. Details of the program may be obtained from the Department Chairperson.

PSC 101 three credits
Introduction to American Politics

Theory and practice of national government in Congress, the Presidency, and the Supreme Court, and the interaction of these institutions with interest groups, political parties, public opinion and the mass media.

PSC 149
Political Science Laboratory

PSC 151 three credits
Introduction to Comparative Politics

Study of political processes, ideologies, constitutional systems and governmental structure of foreign countries including Great Britain, France, Germany, the C.I.S. and selected Third World nations. Comparison with American system of government. Stress laid on the use of the analytical methods. (Formerly PSC 102.)

PSC 201-243 three credits
American Political Issues and Ideas

Issues and ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not political science majors are particularly invited to enroll in such courses. Anticipated offerings in this category include Introduction to Political Economy, Local Politics, Political Essay, Political Assassinations in America, Fundamentals of Political Behavior.

PSC 251-299 three credits
World Political Issues and Ideas

Issues and ideas courses on selected topics to be developed by instructors as student interest and faculty preference indicate. Students who are not political science majors are particularly invited to enroll in such courses. Anticipated offerings in this category include Contemporary Issues in the Middle East, Contemporary Issues in World Politics, and Contemporary Issues in Human Rights.

PSC 301 three credits
The Presidency
Prerequisites: PSC 101 and upper-division standing

The development of the contemporary presidency and its position within the American constitutional framework. Special attention will be paid to the presidential selection system, to alternate models of the presidency and to presidential power.

PSC 302 three credits
The Legislative Process
Prerequisites: PSC 101 or permission of the instructor; and upper-division standing

A study of Congress and the Massachusetts state legislature. Elections, legislative organization, leadership of the legislative party, policy making, interbranch relations and the dynamics of the legislative process are the sub-themes.

PSC 304 three credits
Bureaucratic Politics
Prerequisite: PSC 101 or prior coursework in social science

A broad overview of the development and performance of bureaucratic institutions in the U.S. political system, exploring the extraordinary expansion of bureaucratic authority in recent decades and various explanations of government growth. A review of the historical development of bureaucratic institutions will set the stage for subsequent discussions of the performance of public sector organizations and prospects for significant reform in the next decade.

PSC 305 three to fifteen credits
Internship

Students take part in internship opportunities in the public and private sector, in conjunction with a series of five on-campus seminars with core readings designed to integrate the student's real-world experience with the academic discipline. Students are placed on congressional and state legislative staffs, in state and local government, in the judicial system, in prosecutors' offices, in law firms, and a variety of other public and non profit organizations.

PSC 311 three credits
State Politics
Prerequisites: PSC 101 and upper-division standing

An exploration of politics and government in the American states. The course is a comparative analysis of the 50 states, although special attention will be given to Massachusetts.

PSC 312 three credits
Massachusetts Politics
Prerequisites: PSC 101 or consent of instructor and upper-division standing

An analysis of selected aspects of Massachusetts politics and government: the state legislature, electoral trends, parties, courts, and executive policy are potential subjects. There will be a special emphasis on student research.

PSC 313 three credits
Urban Politics
Prerequisites: PSC 101 and upper-division standing

A critical examination of the urban political community in the United States. Particular attention is given to the adequacy of the city as an arena of conflict resolution and decision-making as well as such current problems as urban reconstruction in the ghettos. Field research in the area by individuals or groups is encouraged but not required.

PSC 314 three credits
Ethnic Politics
Prerequisites: PSC 101 or PSC 238 and upper-division standing (or consent of the instructor)

Explores the impact of ethnicity on American politics in urban settings. It includes an analysis of immigration theory, assimilation theories, the political structure of urban politics (bosses and machines), and the particular relationship between ethnicity and women. A special unit focuses on the Portuguese as an ethnic group and their political behavior in southeastern Massachusetts and Rhode Island.

PSC 315 three credits
Public Policy in America
Prerequisites: PSC 101 and upper-division standing

The policy-making roles, processes, and dynamics of U.S. political institutions, including the federal bureaucracy, media, think tanks, and universities. Major theme and dynamics examined include: governmental secrecy, covert action, the role of scientific experts, and the right to privacy.

PSC 320 three credits
American Political Thought I

American political thought from the Revolution to the Civil War with particular emphasis on ideas of state-building and political economy. Readings may vary, but will likely include the Declaration of Independence, early state constitutions, the Articles of Confederation, The U.S. Constitution, The Federalist, selections from the Jacksonian democrats, and articles by George Fitzhugh.

PSC 321 three credits
American Political Thought II

American political thought from the end of Reconstruction to the New Deal, with particular emphasis on ideas of state-building and political economy. Readings may vary but will likely include William Graham Sumner, selected American Socialists, J. Allen Smith, and Herbert Croly.

PSC 322 three credits
Constitutional Law
Prerequisites: PSC 101 and upper-division standing

Course centers on the development of the constitutional framework of American government. Supreme Court cases will cover judicial review, the powers of the three branches, and federalism.

PSC 323 three credits
Civil Liberties
Prerequisites: PSC 101 and upper-division standing.

In effect the second half of the course on Constitutional Law. The Civil Liberties course deals with the relations between the individual and the state as defined by U.S. Supreme Court decisions. Topics may include rights of racial minorities, freedom of speech, church-state relations, and the rights of criminal defendants.

PSC 325 three credits
Politics and Media
Prerequisites: PSC 101 or PSC 238 and upper-division standing

Explores the relationship between mass media and politics. It includes basic communications theory, the media as socializing agent, the analysis of advertising and the pivotal role played by the media in electoral politics. Special attention is focused on the relationship between the media and women. The course also focuses on the First Amendment and its role in shaping the media itself as well as political discourse in the American democracy. A class project includes the original filming of a political commercial.

PSC 326 three credits
Labor Relations:
Law, Practice, and Policy

An examination of the political and legal framework of U.S. labor relations. The course will include analysis of legislation and Supreme Court and NLRB cases which shape national labor policy and define relations among workers, employers, and the state.

PSC 331 three credits
Political Parties and Interest Groups
Prerequisites: PSC 101 or written permission of instructor; and upper-division standing

The development and function of political parties and political interest groups in American politics. Strategies for lobbying and for creating interest groups also examined.

PSC 332 three credits
Sex Roles and Politics
Prerequisites: PSC 101 or PSC 238 or WMS 100 and upper-division standing

The impact of gender as a variable in American politics. The course analyzes women in the electorate as office holders and as political participants, including participation in political organizations and lobbying groups in American politics. The latter part of the course addresses applied politics in campaign management. Carries credit in Women's Studies.

PSC 333 three credits
Political Behavior
Prerequisites: PSC 101 or PSC 238 and PSC 349, or written permission of instructor; and upper-division standing

Examines political behavior within the American political system. Special emphasis on quantitative methods to examine participation. Original data sets which have provided the sources for assigned readings are supplied. Emphasis on socio-economic models of participation.

PSC 334 three credits
Elder Affairs in American Politics
Prerequisite: PSC 101

The political role of the elderly, the fastest growing age group, and one with the highest rate of voter participation. Public policy issues concerning the elderly and the political dynamic of policy formation.

PSC 338 three credits
Woman as Citizen
Prerequisites: PSC 101 or PSC 238, or permission of instructor; and upper-division standing

The role played by gender, race, and class in defining citizenship. An important theme for analyzing the citizenship status of women stem stems from the public/private dilemma. The course material will develop a critical analysis of that dilemma and how with corollary concepts the citizenship status of contemporary American women is defined. Can also be taken for Women's Studies credit.

PSC 339 three credits
Women and Public Policy

The impact of gender as a variable in American politics. It analyzes women in the electorate as office holders, and as political participants including participation in political organizations and lobbying groups. Cross-listed as Women's Studies 339.

PSC 342 three credits
Public Administration
Prerequisites: PSC 101 and upper-division standing

Examination of the general nature of the bureaucracy in public and private organization and in various cultural contexts. Attention is given to administrative responsibility.

PSC 343 three credits
Business and Government
Prerequisite: PSC 101

The changing relationship between businesses and government at the state, local, and federal levels during the 20th century. Particular attention will be paid to the politics of regulation, price controls, the development of new forms of "social regulation" in the 1960s, and the current trend towards deregulation and privatization. Regulatory programs will be placed in the context of the larger relationship between state and society in the U.S.

PSC 345 three credits
Politics of Public Health

How governments at the federal, state, and local levels cope with threats to the public's health, such as AIDS, lead poisoning, toxic waste, tuberculosis. We will evaluate the effectiveness of government interventions, identify ethical and political pitfalls of present strategies, and assess the prospects for eradicating our most pressing health problems.

PSC 346 three credits
International Institutions for the Earth
Prerequisite: Upper-division standing

An introduction to international agreements, and treaties, created for the protection of the environment. The focus is on recent multi-national conventions under the auspices of the United Nations and other global bodies.

PSC 347 three credits
Environmental Law
Prerequisite: Upper-division standing

An introduction to basic concepts of environmental law. The emphasis is on broad introductory themes.

PSC 348 three credits
Marine Policy and Law

An examination of ocean policymaking in the United States with emphasis on institutional structures, law, and politics involved in managing ocean resources. Main topics covered include fisheries management, coastal zone management, and offshore oil and gas policy; the analysis is drawn from perspectives of public policy, law, and resource management.

PSC 349 three credits
Quantitative Methods for Political Science
Prerequisites: PSC 101 or PSC 238, or permission of instructor; and upper-division standing

Introduces the student to basic statistics and their application to data analysis within a Political Science framework.

PSC 351 three credits
Modern Political Thought
Prerequisite: Upper-division standing

European political theorists from the 16th through 19th centuries. Course will focus on the development of modern liberalism with some attention to its nineteenth century critics. Readings may vary, but most likely will include the major political writings of Hobbes, Locke, Rousseau, and Bentham.

PSC 352 three credits
Classical Political Thought
Prerequisite: Upper-division standing

European political theorists from ancient Greece through the 15th century. Readings may vary, but most likely will include the major political writings of Plato, Aristotle, St. Augustine, and others.

PSC 353 three credits
Non-Western Political Thought
Prerequisite: Upper-division standing

The political philosophy of non-western thinkers whose ideas had a deep impact on the political institutions in lands outside Europe. Emphasis is on Buddhist, Hindu and Muslim thinkers who at different periods of history gave insightful expositions of human nature in politics.

PSC 354 three credits
Contemporary Political Thought
Prerequisite: Upper-division standing

The recent ideological currents in advanced capitalist societies: neo-conservatism, neo-liberalism, syndicalism, postmarxian socialism, eco-anarchism, and corporate fascism. The course will focus on political thinkers who have made significant contributions to the interpretation of contemporary political and economic developments.

PSC 357 three credits
Marxian Political Theory
Prerequisite: PSC 201 or 204, ECO 232, Soc 200; or permission of the instructor

The basic concepts of 'Radical political economy. Course will include an in-depth analysis of Marx's Capital, Vol. I, as well as a survey of current trends in the development of a critical theory of the state.

PSC 360 three credits
Politics and Governments of Western Europe
Prerequisite: PSC 151 or upper-division standing

The political culture, historical political development, and governmental institutions of major Western European nations, including the European Economic Community (Common Market). The course will focus on Britain, France, Germany, and Italy.

PSC 361 three credits
Chinese Government and Politics
Prerequisites: PSC 151 and upper-division standing

An introduction to the People's Republic of China and its political process. The interrelationships between China's revolutionary heritage and the development of Maoist ideology and mass mobilization politics, economic policy, and foreign policy will be examined. Finally, post-Mao politics will be studied to determine the degree and direction of change and its implication for Chinese politics and for the Chinese people.

PSC 362 three credits
Comparative Communist Systems
Prerequisites: PSC 151 or consent of instructor; and upper-division standing

Analysis of similarities and differences among Communist and post-Communist states—Cuba, China, the C.I.S., and Eastern Europe. Emphasis will be on the internal dynamics of change and the effects of ideological and organizational factors on Communist bloc relations, especially the Sino-Soviet dispute. Formerly PSC 318.

PSC 363 three credits
Politics and Government of the Middle East
Prerequisite: Upper-division standing

The politics of the Middle East in terms of the region's history, geography, culture and the impact of the West. Country studies include Turkey, Egypt, Syria, Israel, Jordan, Iraq, Saudi Arabia, and other Gulf States.

PSC 364 three credits
Politics and Government of South Asia

Important political systems in South Asia and South- and Southeast Asia. The countries included are India, Pakistan, Malaysia, and the Philippines. Topics included are constitutional framework, political process, and salient characteristics of the political culture.

PSC 365 three credits
Comparative Constitutional Law
Prerequisite: PSC 151 or PSC 101

How different constitutional regimes approach such problems as judicial independence, distribution of powers, access to the courts, constitutional interpretation, right to counsel, freedom of conscience, religion, and the press. The topics will vary although attention will be paid to approaches to judicial review, U.S., European and Third World systems will be covered.

PSC 366 three credits
Islam and Politics

The political and cultural history of Islam. Students will learn about the contemporary revolutionary religious movements in Muslim countries and their effect on world politics.

PSC 368 three credits
Government of the Commonwealth of Independent States (formerly Soviet Union)
Prerequisite: PSC 151

Ideology, political institutions, public policy, and political behavior in the Soviet Union and C.I.S. since 1917. The relationships among these political phenomena will be examined, as well as, changes which have occurred over time and the reasons for change. Special emphasis will be placed on reform in the C.I.S. under Gorbachev's and Yeltsin's leadership.

PSC 372 three credits
Revolutionary Change
Prerequisite: Upper-division standing

Revolution is treated as a special category of social change. The course deals with a comparative analysis of the determinants of revolutionary change in selected areas in Latin America, Africa, the Middle East, and Southeast Asia.

PSC 381 three credits
Contemporary International Relations
Prerequisite: Upper-division standing

Problems in international relations with emphasis on changing characteristics of contemporary world politics. Attention is given to super-power politics and accommodations (detente) in Europe, East Asia, the Middle East, and Africa, and the problems associated with the emergence of a new world order.

PSC 382 three credits
American Foreign Policy
Prerequisite: Upper-division standing

A study of the substance and formulation of American policies in world politics. Attention is given to the changing role of the United States in world politics, and the varying constitutional, administrative and political considerations which have effected changes in American foreign policy since World War II.

PSC 383 three credits
The Politics of International Economic Relations
Prerequisites: PSC 161 or PSC 361; and upper-division standing

The political origins and impact of international economic issues on both the industrialized and less developed countries. Among the topics to be considered are the politics of the structural aspects of the international political economy (trade, monetary policy, tariff policy, regionalism), institutional aspects (multinational corporations, international lending institutions, aid-giving), and North-South relations and resource distribution. Specific case studies such as global food or energy politics will be used where appropriate.

PSC 384 three credits
International Law and Organization

The course provides insight into all the major dynamics of international law, state succession, recognition, treaties, diplomacy, settlement of international disputes, and international organization (such as the League of Nations and the United Nations).

PSC 391 three credits
Comparative Public Administration
Prerequisite: Permission of instructor or upper-division standing

Comparative study and analysis of the public service system in selected countries in the U.S., Europe, and Asia. Topics include recruitment, selection, promotion, policy making role and social background of the higher civil servants.

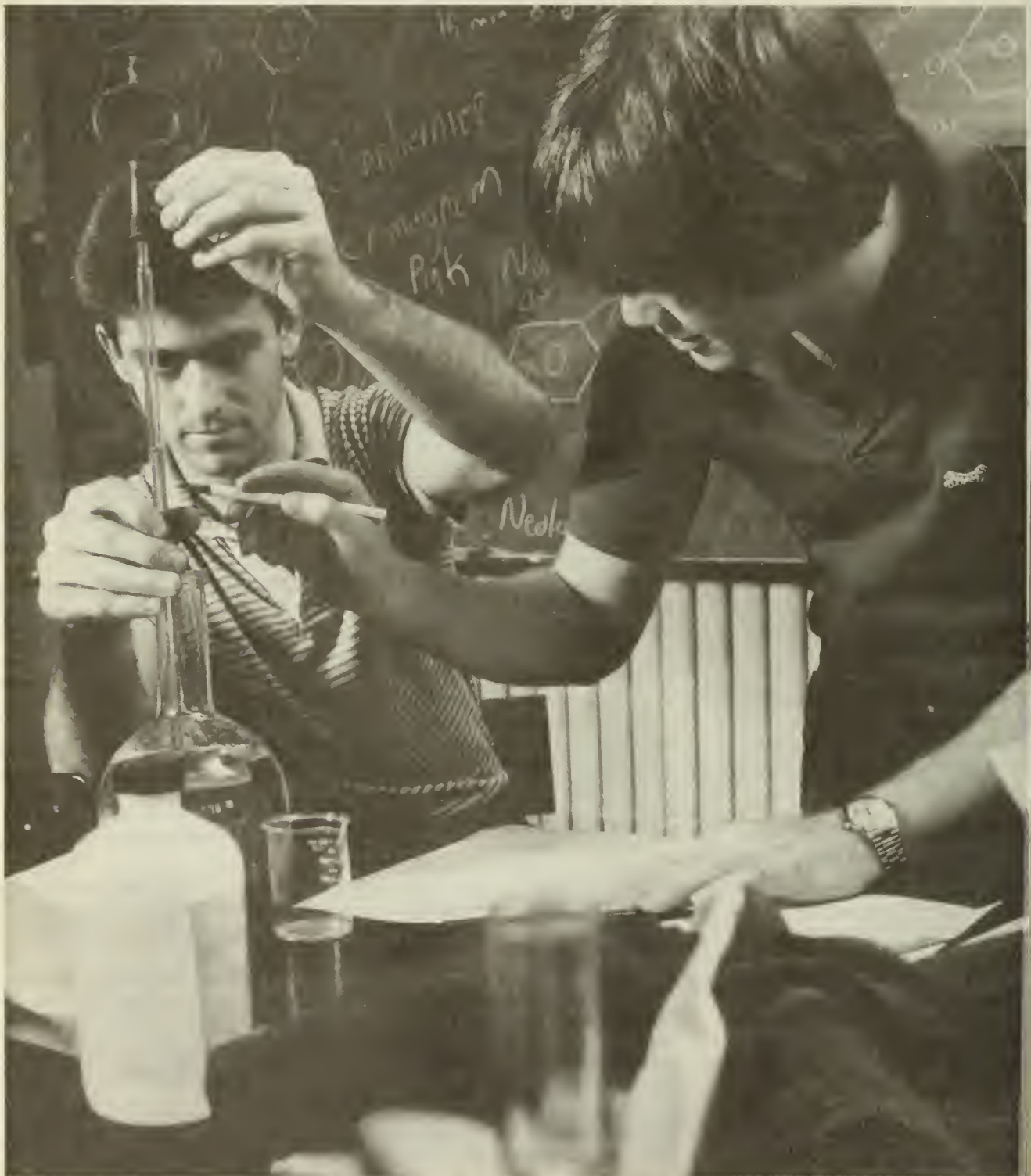
PSC 400-449
Seminars in American Politics and Ideas

PSC 450-494
Seminars in World Politics and Ideas

PSC 495
Independent Study

PSC 496
Directed Study

PSC 499
Thesis



Psychology

The focus of psychology is the scientific study of behavior. Psychology is studied as a science with the implication that there is a commitment to rational thinking and empirical analysis of the problems encountered in describing and explaining human behavior.

A three-course core sequence introduces students to the way in which psychology as a field advances through scientific research. A wide range of subfields of psychology are offered through courses that emphasize our biological heritage (e.g., physiological psychology, perception) to those that examine basic human functioning (e.g., cognition, learning, personality, social) and those that have a distinct applied orientation (e.g., counseling, behavior modification, organizational, and community psychology).

There are also opportunities for students to engage in independent research and honors research projects and to participate in internships in various clinical settings. The curriculum can be structured to prepare students for graduate education or to include applied clinical coursework and experiences that would allow graduates to seek employment in a variety of human services agencies.

Students who major in psychology find primary employment opportunities in personnel management, elementary and secondary high school education, social work, software and other product development. Higher level psychological activities, such as counseling psychotherapy, university instruction, psychological research (in industry, universities, and research centers) and various administrative mental health positions generally require a master's degree or preferably a doctorate in psychology.

The department also offers a graduate program in psychology leading to a master of arts degree, with distinct clinical and research options.

Faculty and Fields of Interest

Victor P. Caliri counseling and organizational psychology, humanistic and health psychology

Lynn Tondat Carter physiological psychology, recovery following neural damage, and psychopharmacology

John Caruso general psychology, human learning and cognition, sport psychology

Julie Cleare clinical and developmental psychology, sex differences, psychological issues in adoption and foster care, sexually abused children and adults

John K. Conboy child and family psychotherapy, psychological assessment, sports psychology, child neuropsychology counseling

Donald Corriveau clinical research, counseling, behavioral medicine

Scott Dickman clinical and personality psychology

Paul A. Donnelly counseling psychology, treatment of adolescent and criminal offenders

Morton H. Elfenbein social psychology, group and organizational behavior, evaluation research, epistemology

Debra L. Franko clinical psychology, eating disorders

Barry R. Haimson (chairperson) psychophysiology and perception

William R. Holt general psychology, behavioral and quantitative psychology, developmental psychology

James B. Riley behavior modification and community psychology

Amy M. Shapiro human learning and memory, educational technology, and psycholinguistics

Judith E. Sims-Knight cognitive and developmental psychology, human-computer interaction

Psychology Major

BA degree

GPA Requirements

The Psychology Department has a GPA requirement that varies with the number of credit hours completed (see below). Failure to maintain the minimum grade point average will mean Departmental Probation. Following two consecutive semesters with a GPA below what is required, the student will no longer be allowed to register for courses designated for psychology majors only.

Number of credit hours/GPA
15/1.90
30/2.05
45/2.05
60/2.35
75/2.425
90/2.50

Requirements

Psychology majors must fulfill requirements listed below. For the class entering in 1991 and subsequent classes, students must earn grades of C- or better in psychology courses required for graduation.

All psychology majors are required to complete successfully General Psychology (PSY 101), Statistics (PSY 205), and Experimental Methods (PSY 210). In addition twenty-one credits must be taken among the five areas listed in the requirements section. This system is designed for the student who wishes to obtain a broad liberal education in the field. Students should plan to complete General, Statistics, Experimental Methods, and their choice from Area 1 (Child or Adolescent Psychology) by the end of sophomore year. Available as electives is a three-course counseling sequence, PSY 406, 407 and 480, which introduces students to some of the applied aspects of psychology. In addition, students who have interests in research and are considering eventual graduate education in psychology may apply to pursue Honors Research. Both of the above options are available for students interested in pursuing clinical research. Students may also participate in the Cognitive Science Program, the interdisciplinary study of issues of the human mind and its applications to effective design (of educational curriculum and experiences, computer software, books, and other products.)

Required Courses

	Credits
PSY 101 General Psychology	3
PSY 205 Statistics for Psychology	4
PSY 210 Experimental Methods	4

Area Requirements

Area 1:
Choose one of the following courses:

PSY 201 Child Psychology PSY 215 Adolescent Psychology	3

Area 2:
Choose two of the following courses:

PSY 202 Abnormal Psychology PSY 204 Social Psychology PSY 302 Psychological Testing	6

Area 3:
Choose one of the following courses:

PSY 305 Physiological Psychology PSY 320 Psychology of Perception	3

Area 4:
Choose one of the following courses:

PSY 303 Psychology of Learning PSY 308 Cognitive Processes	3

Area 5:
Choose at least two upper-level electives, excluding contract learning:

Psychology electives 300-level and above	6
Total	**32**

Psychology Honors Program

The Psychology Department participates in the university honors program by offering honors sections of general psychology, and it also has a departmental honors program.

The psychology honors program is designed to provide psychology students with the opportunity to engage in independent research. It is recommended for all students who wish to pursue a Ph.D. degree, whether in an experimental or applied area. Honors students typically have GPAs over 3.0, but admission to the honors program is based on overall potential and motivation rather than on grade point average alone.

The sequence begins in the junior year with the identification of a research topic and a faculty advisor. Beginning in their junior year or in the first semester of their senior year honors students carry out an original research project by enrolling in an eight credit honors research seminar.

PSY 101 three credits
General Psychology

A broad survey of principles underlying the systematic study of behavior. Using examples from basic research and applied settings, a variety of perspectives are explored, including findings associated with the physiological, behavioral, cognitive, developmental and social approaches.

PSY 201 three credits
Child Psychology
Prerequisite: PSY 101

A study of the child from both the developmental and experimental approaches. Topics that may be included are methodology in child research, heredity and environment controversy, intelligence, language and communication, learning in infancy and childhood, and motor, cognitive, perceptual, personality, and social development. This course meets the Massachusetts Office for Children requirement for day care center certification, OFC Category A, Child Growth and Development.

PSY 202 three credits
Abnormal Psychology
Prerequisite: PSY 101

Study of development and characteristics of behavior disorders. Topics to be considered include: cause of abnormal behavior, transient personality reaction to acute or special stress, psychoneurotic disorders, and therapeutic measures.

PSY 204 three credits
Social Psychology
Prerequisite: PSY 101

The study of experimental findings, theoretical and methodological issues in understanding the individual in a social context.

PSY 205 four credits
Statistics for Psychology
Prerequisite: PSY 101

An introduction to analysis of quantitative data in psychology, including probability, descriptive statistics, correlation and regression, analysis of variance and data analysis by computer.

PSY 210 four credits
Research Methods
Prerequisites: PSY 101, 205

An introduction to the design, administration and analysis of psychology experiments, and other types of research including computer applications. Emphasis also on evaluation of research and scientific report writing.

PSY 215 three credits
Adolescent Psychology
Prerequisite: PSY 101

A survey of theories of adolescent personality development, psychopathology and current issues in the field.

PSY 302 three credits
Psychological Testing
Prerequisites: PSY 101, 205

An introduction to basic principles and techniques of psychological testing, and a study of the major types of tests.

PSY 303 three credits
Psychology of Learning
Prerequisites: PSY 101, 205, 210

A survey of learning principles from simple conditioning to complex creative behavior.

PSY 305 three credits
Physiological Psychology
Prerequisites: PSY 101, 205, 210; basic biology recommended

The study of the biological basis of behavior. Course covers basic principles of neurophysiology, neuroanatomy, neuropharmacology. This course also covers biological bases of abnormal behavior, drug addiction, visual processing and sleep mechanisms.

PSY 308 three credits
Cognitive Processes
Prerequisites: PSY 101, 205, 210

This course introduces the scientific study of human symbolic processes such as problem solving, creative reasoning, and visual thinking. Alternative theoretical orientations and the development of cognitive processes will also be presented.

PSY 312 three credits
Organizational Behavior
Prerequisite: PSY 101

A review of historical and current psychological theories and empirical data concerning organizational behavior through lectures and experiential learning groups.

PSY 320 three credits
Psychology of Perception
Prerequisites: PSY 101, 205, 210; basic biology recommended

An overview of research methods and results in the area of perception. Special emphasis on role of stimulus variables and attention on the perceptual constancies, color, size, form, and space perception.

PSY 323 three credits
Psychology of Adjustment
Prerequisites: PSY 101, 202, junior standing

A study of the ways in which people adjust to the complex problems of mental health and behavioral dysfunction. The emphasis is on psychosocial models and developmental perspectives rather than medical disease models. Psychoanalytic and behavioral approaches are contrasted with humanistic-existential concepts. Various strategies and approaches for coping with maladaptive and dysfunctional conditions including depression, anxiety, and alcohol and drug abuse are reviewed.

PSY 330 three credits
Personality Theory
Prerequisites: PSY 101, 202, junior or senior psychology major

Study of personality structure and development through analysis of the theoretical contributions of major personologists.

PSY 333 three credits
Psychology in Sports
Prerequisites: PSY 101, 205, 210 or permission of instructor

Investigates behavior in high-level competitive sports and noncompetitive sport activities. Study in the field, which has theoretical, applied and clinical aspects, focuses on athletes, coaches, teams, and spectators.

PSY 375 three credits
Psychology of Sex Differences
Prerequisites: PSY 101, 205, 210

This course is designed to stimulate discussion among men as well as women, by exploring topics such as the development of sex differences, socialization practices, attitudes, values and role expectations which affect the self-concept and interpersonal relationships.

PSY 406 three credits
Counseling I
Prerequisites: PSY 101, 202, 330

Introduction to philosophies, theories and techniques of counseling, and demonstrations of various psychotherapeutic methods. This course is best taken in the spring of the junior year, so students have the option of taking PSY 407 and PSY 480 in sequence in the senior year.

PSY 407 three credits
Counseling II
Prerequisites: PSY 406, and permission of instructor

Continuation of PSY 406, plus tape experiences and supervised practicum experiences.

PSY 409 three credits
Community Psychology
Prerequisites: PSY 101, and any three among PSY 201, 202, 215, 330, 406

A survey of the theories, techniques, and goals of community psychology, particularly as they relate to the community mental health movement.

PSY 418 three credits
Behavior Modification
Prerequisites: PSY 101, 205, 210, 303

The course begins with a discussion of ethical standards relevant to the modification of human behavior. Psychodynamic theory is reprised to provide a contrasting theoretical perspective to the therapeutic uses of behavior modification techniques. Classical and operant conditioning procedures are reviewed.

PSY 480 three credits
Field Work in Counseling Psychology
Prerequisites: PSY 202, 302, 370, 406, 407, and permission of instructor

A practical one day a week assignment in a cooperating state or private mental health facility. Where permitted, students will participate in learning about counseling, interviewing, referral and some evaluation techniques. On-site and departmental supervision is required, with a detailed final report.

PSY 490 variable credits
Special Topics in Psychology
Prerequisites: PSY 101, 205, 210, and other upper level courses depending on topic

Advanced seminar usually offered for one semester on a special topic. Check course schedule for special topics seminars. Examples of special topic courses recently offered include: Human-Computer Interaction, Psychopharmacology

PSY 495 variable credits
Independent Study
Prerequisites: PSY 101, 205, 210 and other upper level courses; and permission of instructor

Students independently pursue an individual research project, under the supervision of a faculty advisor.

Graduate Courses in Psychology

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

PSY 498 four credits
Honors Project I
Prerequisites: PSY 101, 205, 210, appropriate upper-level courses, and permission of faculty advisor and course instructor

The first course in the two-course honors thesis sequence. Students meet weekly with their thesis advisors on an individual basis and weekly as an honors seminar group. During the seminar the honors faculty discuss with the students the general issues of developing a thesis and during the individual meetings with the faculty advisor individual issue and problems are discussed. The goal of this course is to develop a thesis proposal and complete the preparation necessary to conduct the thesis project during the next semester. The optimal time to take this course is the spring of junior year, but it may also be taken in the fall of senior year.

PSY 499 four credits
Honors Project II
Prerequisite: PSY 498

Continuation of PSY 498. The goal of this course is to conduct, analyze, and write up the research described in the thesis proposal. Students will meet regularly with their thesis advisors.

PSY 900
Contract Learning

PSY 501 three credits
Physiological, Psychology, and Psychopharmacology
Prerequisites: Graduate student status and previous course in Physiological Psychology

Provides an advanced study of the physiology of the nervous system and the workings of the brain. Included is a working understanding of psychopharmacology in present day use. Practical application, side effects and utilization of medication in the mental health field today is of specific concern.

PSY 503 three credits
Advanced Psychopathology

Theories of abnormal psychology, in an advanced study of the major forms of psychopathology. Students will be exposed to the Diagnostic and Statistical Manual of Mental Disorders as published by the American Psychiatric Association. Case studies and therapeutic intervention strategies will be emphasized.

PSY 505 three credits
Research Methods and Design

Integrated statistical procedures and research design. Special emphasis will be placed on methodological issues that are likely to confront the graduate in applied settings. Traditional statistical and design concepts, as well as special applied research tools such as survey methodology, program evaluation "small-N" designs, nonparametric and multivariate models will be presented. Commonly available statistical packages will be used throughout. The course will reflect a strong experiential component including data collection, analysis and interpretation.

PSY 506 three credits
Advanced Research Design
Prerequisite: a statistics class and permission of instructor

In-depth study of statistics used in psychological research. Major topics include regression and the general linear model, analysis of variance design, including multivariate analysis, and a practical introduction to factor analysis.

PSY 511 three credits
Theories of Psychotherapy

Explores the major counseling theories in an academic and experiential format. Role playing and videotaping are used. Examples of the theories discussed are reality therapy, behavior therapy, rational emotive therapy, gestalt therapy, transactional analysis, client-centered therapy, and the psychoanalytic model.

PSY 512 three credits
Evaluation Techniques

Traditional components of psychological testing, including test construction, test development, test administration and test interpretation, and specific training in frequently administered clinical tests (e.g., MMPI, WAIS and WISC). Beyond traditional test theory, students will be exposed to contemporary evaluation de-vices including behavioral assessment, interview data, and naturalistic observation.

PSY 513 three credits
Seminar: Topics
Pre- or Corequisite: PSY 506

In-depth seminar on selected topics in a field of psychology. A few specific topics will be examined in depth—the historical roots, theories, and current research approaches. Each fall semester, one of four areas will be covered: Personality and Psychopathology, Cognition, Social Psychology, Perception and Psychophysiology. One of the primary goals of this course is to prepare students for PSY 514, in which knowledge gained in this course will be used to conduct research projects.

PSY 514 three credits
Research Techniques: Topics
Prerequisites: PSY 506, 513

The study of research techniques in the context of specific topics studied in the associated seminar. Each spring semester, one of four areas will be covered: Personality and Psychopathology, Cognition, Social Psychology, Perception and Psychophysiology. The course will include both formal and hands-on work.

PSY 521 three credits
Behavior Modification and Behavior Therapy

Basic principles of learning as theoretical underpinnings of contemporary applied behavioral psychology. Behavior change techniques derived from learning theory widely used in clinical, education, recreational, and family settings will be examined, and individual group applications compared and contrasted.

PSY 522 three credits
Behavioral Family and Group Counseling

Detailed analysis of the function and structure of the family unit. The academic component includes topics such as family systems, behavioral contracting, networking, family sculpting, power, control, setting behavioral goals, the double bind, the identified patient, groups as a system, and the structuralist approach. The experiential component involves the intergenerational family tree, role playing diagnosis, and evaluation of actual families.

PSY 523 three credits
Behavioral Medicine

An interdisciplinary approach to health and illness. Particular emphasis is placed on the interface of psychology and other allied disciplines with traditional medical approaches. Students are introduced to medical psychology as a profession and are exposed to a variety of practical applications.

PSY 524 three credits
Advanced Behavior Modification and Behavior Therapy

Theoretical and functional considerations for the design and implementation of effective behavior programming. Through readings and analysis of case studies, students will gain familiarity with the theoretical and applied principles of behavior modification and therapy.

PSY 541 three credits
Contemporary Psychoanalytic Theory

The course is an examination of several of the current psychoanalytic approaches in the treatment of mental illness. Included in the course will be work of the Object Relations Theorists (English school); those working with borderline conditions such as Masterson, Kohut et al, and the work of Mahler and other researchers of early psychological experiences. (Offered at BSC)

PSY 542 three credits
Psychodynamic Psychotherapy

A detailed examination of the application of psychoanalytic theory to marital, family and group systems. The examination of interpersonal relationships which are maladaptive and the change strategies and modalities utilized by the therapist. (Offered at BSC)

PSY 551 three credits
Advanced Seminar in Personnel

This course will cover a variety of topics that are important to personnel management and counseling. These topics will include personnel policy formulation and implementation, the use of testing in the industrial setting, the purpose and structure of the interview, the development and implementation of employee assistance programs, etc. Student presentations and/or term papers will be required. (Offered at BSC)

PSY 552 three credits
Employee Evaluation Techniques

This course will survey current techniques used in evaluating the training and performance of employees. Appraisal techniques such as employee rating scales, interpersonal ranking methods, and management by objectives will be discussed with particular emphasis on the motivation of employees. (Offered at BSC)

PSY 553 three credits
Theories of Research in the Psychology of Motivation

This course examines a critical problem in personnel management today, namely how to develop and sustain a high level of motivation among workers. The program is explored in detail through analysis of psychological theories of motivation and through review of recent research in industrial psychology. (Offered at BSC)

PSY 580 three credits
Graduate Seminar in Psychology

Graduate seminar on a specific topic. Topics vary according to student needs and faculty expertise in particular areas of study.

PSY 589 four credits
Graduate Practicum

Graduate Practicum in Clinical Psychology presenting a distinctly defined, pre-internship, supervised curricular experience. Course requirements include Massachusetts licensing requirements for Master's level mental health counselors. Students will provide direct service work with a clientele appropriate to the program emphasis. Classroom work will include role plays or other laboratory experiences. Students will be provided with both individual and group supervision experiences.

PSY 591 & PSY 592 four credits
Internship I & II

Applications of skills acquired through classroom work through internship placements. Students will be placed in mental health agencies and will receive extensive supervision.

PSY 593 variable credits
Seminar in Clinical Methods I

Graduate seminar prepares third year graduate students to review research in a major clinical area. Students create an in-depth review of the literature and synthesize this material in a clear and concise written response.

PSY 594 variable credits
Seminar in Professional and Ethical Issues
Prerequisite: Graduate student status

Advanced seminar on legal, ethical, professional and moral issues facing mental health practitioners. Aspects of testing, assessment, psychotherapy issues and psychopathology theory will be central issues. The course culminates with a written and oral exam testing application of clinical knowledge; ethical and legal issues through a clinical case study model.

PSY 595 three credits
Independent Study

Independent pursuit of an individual research project under the supervision of a faculty sponsor.

PSY 596 variable credits
Graduate Thesis Supervision

Variable credit assigned while studying with a faculty advisor on the preparation of a graduate thesis. (Total not to exceed four credits.)

Sociology and Anthropology

The department's primary focus is the study of human beings and the analysis of collective action and the socio-cultural settings in which it occurs. The department offers courses in sociology, anthropology, social work and a number of courses that are primarily interdisciplinary in nature. Sociology is the study of social behavior in its different forms. It is the study of whole societies and their basic institutions (e.g. religion). It also studies human groups on a smaller scale such as the family, peer group, and neighborhood.

Anthropology and sociology overlap somewhat, although an anthropologist is more likely to study non-western societies and to emphasize more the biological base of human behavior, human evolution, and a society's ethos. Social work is the application of concepts from disciplines such as sociology, psychology, and anthropology to an area of concern in modern society. Social work and social action growing out of the basic disciplines (above) increasingly attempt not only to study and treat but create new social realities.

A major in this department may be chosen for the inherent satisfaction the knowledge provides. It also may be the foundation for social action or for graduate work.

Faculty and Fields of Interest

Roberta Hazen Aaronson social work grassroots community organizing, social policy

John E. Bush research design, complex organizations, Black identity, human sexuality (on leave, Special Assistant to the Chancellor for Affirmative Action)

Geraldine Gamburd anthropology, ecological theory, South Asia, egalitarian and cooperative community alternatives

Jane Hilowitz American society, European society, social change

Toby E. Huff sociology of law, science and religion; quantitative studies of American society; theory; and criminal justice

Donna L. Huse social psychology, community psychology, peer counseling

Susan Krumholz criminal justice, issues of abuse

Yale R. Magrass social theory, sociology of knowledge, historical and political sociology, social change, social problems, social psychology, methodology

Larry M. Miller (chairperson) historical sociology and Meso-America, social theory, sociology of art and literature

Thomas K. Ranuga third world studies: Africa, Caribbean and South Africa

R. Penn Reeve anthropology, cultural race and ethnicity, social inequality

Jack Stauder anthropology, political economy, social movements, third world, environmental issues

Virgilio Zanin sociology of deviant behavior, criminology, sociology of law

Sociology Major
BA degree

Students are offered, in addition to the many selections in general sociology, three major options, the option in anthropology, the option in criminal justice, and the option in social services.

The courses listed "SOC or ANT" are courses that bridge the fields of sociology and anthropology. Students may elect to gain credit in either field by registering in the course and selecting one prefix. Anthropology credits can be counted toward a sociology major.

Students must have a 2.0 cumulative grade point average to be accepted into the major and must maintain a 2.5 GPA in major courses in order to graduate with a sociology major.

Sociology Major Common Departmental Distribution Requirement

To expose sociology majors to important subject areas in the field and offer organization and coherence to their choices, we require one course from each of the following four areas. This departmental distribution requirement is to be met within the requirements and electives of the student's sociology major or option. Courses which have not been included (special topics, readings courses, independent study) may be substituted for courses in the various areas, where appropriate and with approval of the student's advisor. New courses may be added to each of the four areas as appropriate, again with approval.

Social Institutions and Issues
SOC 102
Social Problems
SOC 209
Sociology of Life, Death, and Meaning
SOC 212
American Culture and Education
SOC 301
Sociology of Work
SOC 302
Sociology of Art
SOC 312
Deviant Behavior
SOC 340
Law and Society
SOC 342
Organization of Criminal Behavior
SOC 381
Social Impact of Science and Technology

Social Inequality and Diversity
SOC/ANT 204
American Indian
SOC 305
Political Sociology
SOC 230
Black Identity and the Social world
SOC 330
Blacks and Whites in America
SOC 331
Race and Ethnicity
SOC 336
Women and Social Policy
SOC/ANT 337
Comparative Ethic Relations
SOC 356
Wealth, Status, and Power in America
SOC/ANT 360
Structures of Power and Inequality

Social Change
SOC 220
Social Change
SOC/ANT 227
Cultural Evolution
SOC 240
Dynamics of Community Organization
SOC 246
Shaping the Human Environment
SOC/ANT 268
Environmental Issues
SOC 310
Social Movements
SOC/ANT 363
Environment and Development

Comparative Cultures and Global Issues
SOC 205
Industrial Society and Human Problems
SOC/ANT 226
Sociology of Africa
SOC/ANT 255
Peoples and Cultures of Europe
SOC/ANT 304
Third World Development
SOC 326
Latin America
ANT 327
Myth and Ritual
SOC/ANT 328
Cultural Ecology
SOC 329
Middle East
SOC/ANT 333
Peoples of South Asia
SOC 334
Sociology of Food
SOC/ANT 362
Peoples and Cultures of the World

Sociology Major
General Option

Requirements

Majors are required to take 30 credits in the department, including 12 upper-division credits.

	Credits
SOC 101 Introduction to Sociology OR	3
ANT 111 Cultural Anthropology OR SOC 113/ANT 113 Intro to Social and Cultural Behavior	
Methods Requirement	
SOC 206 Introduction to Research Methods OR	3
SOC 401 Research Methods	
Theory Requirement	
SOC 200 Introduction to Social Thought OR	3
ANT 208 Intro to Anthropological Theory OR SOC 402 Sociological Theory OR ANT 405 Anthropological Theory	
Electives in Sociology or Anthropology	21
Total	**30**

Sociology Major
Option in Social Anthropology*

This option introduces students to the anthropological perspective: the physical and cultural evolution of the human species; prehistoric cultures, comparison of cultures from different parts of the world. Intended for students interested in a cross-cultural world perspective as a sound basis of a liberal arts education and/or as preparation for graduate school in anthropology for employment in a variety of fields.

*For students entering in Fall 1993, this program has been refocused as an option in Social Anthropology. Compared to the present program, emphasis will be shifted away from Physical Anthropology and Archaeology. Specific requirements will be available once final approvals have been obtained.

Requirements, Option in Anthropology

Majors are required to take 30 credits in the department, including 12 upper-division credits.

	Credits
ANT 110 Introduction to Physical Anthropology	3
ANT 111 Introduction to Cultural Anthropology	3
ANT 261 Introduction to Archeology I	3
Theory requirement	
ANT 208 Introduction to Anthropological Theory OR	3
ANT 405 Anthropological Theory OR SOC 200 Introduction to Social Thought OR SOC 358 Theory and Explanation	
Methods requirement	
SOC/ANT 206 Introduction to Research Methods OR	3
SOC/ANT 401 Research Methods OR SOC/ANT 407 Field Inquiry	
Electives in sociology or anthropology	15
Total	**30**

Sociology Major
Option in Criminal Justice

The program in criminal justice is an interdisciplinary concentration grounded in the liberal arts tradition. It draws on the full range of the university's resources to give students new opportunities to combine a university education with enhanced avenues for career advancement and public service.

Students wishing to chose this option should consult a faculty advisor in the Department of Sociology and Anthropology.

In addition to providing a university education for students who aspire to serve in the criminal justice system, UMass Dartmouth's program seeks to foster an understanding of the role of criminal justice systems in democratic societies. The intent of the training is to study the whole range of criminal justice activities and agencies which extend from the commission of criminal acts, the police and the courts, to probation, parole, and the social service system. Efforts have also been made to incorporate comparative and historical perspectives which focus on the processes which give rise to legal and extra-legal activities. Courses in counseling, as well as probation and parole, will form an integral part of the program.

All "pre-service" students will be required to take a one-semester internship. The student will be placed in a relevant position in the criminal justice system, such as a parole office, court, or correctional institution, and his or her experience will be supervised by a UMass Dartmouth faculty member.

Students with one or more years of working experience in the criminal justice system will substitute SOC 400 (Special Topics) or SOC 495 (Independent Study) for the Internship upon the recommendation of the Chairperson of the Department.

Requirements
(in this recommended sequence)

	Credits
SOC 357 Justice and Society	3
PHL 326 Philosophy of Law	3
SOC 358 Theory and Explanation	3
SOC 312 Deviant Behavior	3
SOC 331 Race and Ethnicity	3
PSY 406 Counseling I	3
SOC 400 Special Topics	3
SOC 349 The Computer and Data Analysis	3
PSC 339 Women and the Public Policy Agenda OR SOC 336 Women and Social Policy	3
SOC 450 Internship	3
Three elective courses from the list in next column	9
Total	**39**

Approved electives

PHL 215
Ethics

PHY 202
Abnormal Psychology

PSC 339
Women and Public Policy

PSC 323
Civil Liberties

SOC 342
Organization of Criminal Behavior

HST 337
English Constitutional History

ECO 343
Economics of Sex and
Race Discrimination

Sociology Major
Option in Social Services

The Social Service option provides students with the knowledge to confront the social issues and problems that social workers encounter in their work and to analyze them in a broad social, political and economic context. The option helps to develop the beginning skills necessary to provide services and includes the study of the functions and characteristics of the social services in our society; exploration of the personal and social values that influence our work with people in a helping relationship; practitioner roles and methods of social intervention; and practical "hands-on" experience working in social service agencies. The option is intended for students planning to enter the social service profession or graduate studies in social work.

Requirements

Majors are required to take 30 credits in the department, including 12 upper-division credits. Students select courses within the following clusters:

		Credits
Sociology, 9 credits selected from the following*		
SOC 202	Social Psychology	9
SOC 205	Industrial Society and Human Problems	
SOC 305	Political Sociology	
SOC 312	Deviant Behavior	
SOC 356	Wealth, Status and Power in America	
SOC/ANT 360	Structures of Power and Inequality	

Note: Most of these courses require an introductory sociology course as a prerequisite.

Psychology, 6 credits selected from the following*		
PSY 201	Child Psychology	6
PSY 202	Abnormal Psychology	
PSY 215	Adolescent Psychology	
PSY 323	Psychology of Adjustment	
PSY 330	Personality Theory	
PSY 406	Counseling I	

Note: PSY 101 is a prerequisite for all of these courses.

Issues of Race, Gender, and Ethnicity, 6 credits selected from the following*		
SOC/ANT 204	The American Indian	6
SOC 230	Black Identity and the Social World	
SOC 336	Women and Social Policy OR	
WMS 101	Introduction to Women's Studies	
WMS 110	Women in Contemporary Society	

Social Welfare and the Social Services — 9 credits		
SOC 203	Social Work I	9
SOC 355	Social Work II	
SOC 240	Dynamics of Community Organization	

Social Work Practice		
SOC 408	Social Service Internship	3

Note: Students must first complete SOC 203, 355, and 240.

Total **30**

*
In these clusters, course substitutions may be allowed with permission of the program coordinator.

Sociology Minor

A student can request entrance to the minor program in sociology after completing at least 54 credits with a cumulative grade point average of 2.0 and with at least a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.

Requirements

The minor in sociology requires completion of at least 18 credits, of which 9 must be at the upper division level. Three courses (as in the major) will be taken which include Introductory level courses (SOC 101, ANT 111, or SOC/ANT 113), a theory course (SOC 200, ANT 208, SOC 402, or ANT 405), and a methods course (SOC 206 or SOC 401 or equivalent methods course in Economics, Political Science, or Psychology), plus three upper-division sociology or anthropology courses. All anthropology courses can count for the Sociology minor, as they do for the major.

Anthropology Minor

A student can request entrance to the minor program in anthropology after completing at least 54 credits with a cumulative grade point average of 2.0 and with a 2.5 grade point average in his/her major. Requests must be approved by the chairperson of the Sociology/Anthropology Department.

The department also offers an option in anthropology for sociology majors.

Requirements

The minor in anthropology requires completion of at least 18 credits, of which 9 must be at the upper division level. Specifically, they will include ANT 111, either ANT 110 or ANT 261; ANT 208 or ANT 405; and three additional upper level courses Sociology/Anthropology or Anthropology electives.

SOC 101 three credits
Introduction to Sociology

A survey of the fundamental principles of sociology and the basic factors conditioning social behavior.

SOC 102 three credits
Social Problems

A survey of various social problems in the contemporary world. Special emphasis will be placed upon analysis of social problems in American society.

ANT 110 three credits
Introduction to Physical Anthropology

A survey of the fundamental concepts of the science of human beings. This course concentrates upon the physical evolution of the human species, the comparison of the behavior of currently existing primates, and interdisciplinary searches into topical questions such as the evolution and nature of aggression and/or hierarchy and dominance.

ANT 111 three credits
Introduction to Cultural Anthropology

An introduction to the basic concepts of social and cultural anthropology. Readings emphasize the comparative study of societies at different levels of socio-cultural integration and from different areas of the world. This may include a brief introduction to physical anthropology and archaeology.

SOC 113 or ANT 113 three credits
Introduction to Social and Cultural Behavior

A combined introduction to Anthropology and Sociology, the comparative study of societies, their similarities and differences and how these are understood by social science.

SOC 159-199 three credits
Social Issues

Courses are offered on selected social issues as student and faculty interest indicate. May be offered under the ANT prefix where appropriate.

SOC 200 three credits
Introduction to Sociological Thought
Prerequisite: SOC 101

An introduction to the enterprise of sociological theory. As such, it attempts to introduce students to the questions, problems, and intellectual tasks of theorizing about society and our social lives as well as to expose students to some of the most important competing ways in which previous social theorists have gone about this task.

SOC 202 three credits
Social Psychology

Some of the fundamental questions of social psychology—what is a human being? what are human relations? what is a group?— rom the social perspective generated by psychoanalytic theory. The focus is on the relation of the individual to the group when both are in the process of transformation. Readings from various social psychologists.

SOC 203 three credits
Social Work I
Prerequisite: SOC 101 or 102

This course will provide students with a theoretical framework and a cross-cultural perspective for understanding the role of the social services in our society. An exploration of the history, politics and economics of our social welfare system will be undertaken through discussion, guest speakers and field work.

SOC 204 or ANT 204 three credits
The American Indian

A brief review of the prehistory of humans in the Americas. A study of the people and cultures of America before the arrival of Europeans. The interaction between various Indian groups and different European forces. Historical and social outcomes of that interaction. A focus on the status of Indian groups in the United States in recent times.

SOC 205 three credits
Industrial Society and Human Problems

An overview of modern society, particularly our own, with an emphasis on the problems and possibilities we face today.

SOC 206 or ANT 206 three credits
Introduction to Research Methods
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

An introduction to the concepts and methodology of social science research.

SOC 210 or ANT 210 three credits
Culture and Personality
Prerequisites: SOC 101 or 113 or ANT 111 and PHY 101

An analysis of personality development with particular stress upon the cultural determinants of identity, character, and motivation. The thesis of national character formation as well as socio-cultural variations in psycho-pathology and normalcy will be examined.

SOC 217 three credits
Societies of the Future

Introduction to the growing world crises of resource and energy scarcity and its future consequences for world civilization. Explanation of possible cultural transformations and future social orders. Cross listed with PHY 217.

SOC 220 three credits
Social Change
Prerequisite: SOC 101

An analysis of the processes of social change. Why does social change occur? Attention will be given to both economic factors and conscious movements for social change.

SOC 226 or ANT 226 three credits
Sociology of Africa
A survey of change and conflict in African society, historically and at present. Particular attention will be paid to the effects of colonialism and African resistance to it.

SOC 227 or ANT 227 three credits
Cultural Evolution
Prerequisite: SOC 101 or ANT 111 or SOC 113 or ANT 113

The evolution of human societies from prehistoric to modern times. Focus will be on the interaction between the development of technological forces and changes in social relations and institutions.

SOC 228 three credits
Sex Roles and Sexuality in American Society
Prerequisite: Permission of instructor

The changing definitions of the roles of men and women in American society from our own experience and from social, historical, and biological perspectives. Class sessions will include the following: the development of male and female in the evolutionary system; human sexuality; cross-cultural sexual identities; images of male and female in American literature, movies, and the popular imagination; socialization and the development of sexual identity; problems of courtship and intimacy.

SOC 230 three credits
Black Identity and the Social World
This course is especially designed for Black students and white students who are concerned with Black heritage. Considerable time will be spent in studying the heritage of black people. We will examine the African past through literature, etc., examine the survival techniques which Blacks developed in order to survive in an alien world, and analyze the collective identity of Black people at the present time.

SOC 232 or ANT 232 three credits
Portuguese in the Americas

A sociological examination of the Portuguese experience in the U.S. and Brazil with focus on immigration, interethnic relations, problems of adjustment and opportunities in the two countries.

SOC 240 three credits
Dynamics of Community Organization

An analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation expected in class discussions. In addition, mini-lectures, field simulations, role-playing, guest speakers, and field observations will be utilized.

SOC 249 or ANT 249 three credits
The World of Work
Prerequisites: One introductory social science or English course and ENL 101,102

An examination of the personal and social importance of work in human society through literary, sociological, and anthropological texts. These issues will be explored: The meaning, value, and organization of work in nonindustrial and industrial societies, the effects of value systems on the work process; the problems surrounding work in contemporary America (gender, age, race, class, worker/management relations), and the future of work.

SOC 251 three credits
Group Processes
Prerequisite: Permission of instructor required. Interview with student required.

The class will present a theory of human potential, distress, and recovery, which is concerned with how to reevaluate one's experience and life history from a powerful positive perspective. The class will use new rules of communication which allow equal time for everyone participating, stress the necessity both of sympathetic attention and spontaneous self-expression, and emphasize ways of communicating feelings that are repressed in everyday social relations.

SOC 252 three credits
Analyzing Racism in America
Prerequisite: SOC 101

Protest movements and the roles individuals, more particularly Blacks, have played in battling oppression and injustice.

SOC 253 three credits
Urban Sociology
Prerequisite: SOC 101

An ecological and social psychological analysis of urban life in the United States. Urban institutions and their social relations with the urban community are given special attention.

ANT 261 three credits
Introduction to Archaeology I

An introduction to the principles of method and theory of modern American archaeology.

ANT 262 three credits
Introduction to Archaeology II

An introduction to archaeological documentation of prehistoric socio-political organization. Emphasis on the development of state levels of social organization in an evolutionary perspective.

SOC 268 or ANT 268 three credits
Environmental Issues

Introduction to controversial social issues surrounding environmental problems. The course addresses how modern society is creating and responding to current environmental trends and gives social ecological perspective on our human prospect.

SOC 301 three credits
The Sociology of Work
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

The analysis of work in modern society, and how, historically, labor/management relations have shaped our lives.

SOC 302 three credits
The Sociology of Art I
Prerequisite: either SOC 101, SOC 111, SOC/ANT 113, or History of Art; or permission of instructor

The relationship between society and art and artists. Various problems will be taken up concerning the recruitment and careers of artists and the effects that these have had on their artistic work.

SOC 303 or ANT 303 three credits
Family and Kinship: An Interdisciplinary Approach
Prerequisite: A social science course

A study of the functions and stresses of the family in complex society. A comparison of family behavior in folk and urban cultures, a study of bio-social life (erotic behavior, child care, and death) using the perspective of several disciplines-psychoanalysis, sociology, and anthropology. Speculations on the future of the family.

SOC 304 or ANT 304 three credits
Third World Development
Prerequisite: SOC 101, 111, or 113

A study of the "Third World" — its political economy and roots in world history and international relations. The focus will be on understanding the sources of underdevelopment and the possibilities for development.

SOC 305 three credits
Political Sociology
Prerequisites: SOC 101, SOC/ANT 113, PSC 101, 102; or permission of instructor

An exploration of sociological perspectives on the study of power relationships, political communities, political processes, and institutions.

SOC 307 three credits
Sociology of Conflict and War
Prerequisite: SOC 101 or permission of instructor

An exploration of theories that humans are by nature aggressive or cooperative beings; of the nature, sources and dynamics of social conflict generally and war in particular; and, of possible alternatives to war.

SOC 308 three credits
Sociology of Religion
Prerequisites: SOC 101 or SOC/ANT 113; and upper-division status

Comparative sociological analysis of religious movements in industrial and non-industrial societies. The interplay between religion and social structure is examined. The church-sect typology and the institutionalizing of religious belief systems will be examined. Consideration will also be given to the influence of religious creeds upon patterns of thought and action and on socio-cultural change.

SOC 309 or ANT 309 three credits
Readings in Sociological and Anthropological Literature
Prerequisite: Junior or senior standing.

This course is designed for students who would like to do reading and writing on specific sociological and anthropological topics normally not included in the curriculum. Students will work on these topics under the close supervision of individual instructors. Students are limited to one such reading course per semester

SOC 310 three credits
Social Movements I
Prerequisite: SOC 101 or permission of instructor

A sociological analysis of the origin and development of social movements with an emphasis on detailed study of particular social movements.

SOC 312 three credits
Deviant Behavior
Prerequisite: SOC 101; junior or senior standing

Review of theory and research with emphasis on their implications for a general theory of deviant behavior. Sociological knowledge will be applied to the analysis of selected topics such as: organized crime and drug addiction. Social factors and influences in deviant conduct are given heavy stress. Sociological analysis of the agencies of control will be included.

SOC 314 three credits
Complex Organizations
Prerequisite: SOC 101

This course is specifically concerned with the workings of large formal organizations such as universities, hospitals, prisons, and government organizations. Attention will be given to the social interactions within the organizations, and especially how organizations maximize efficiency given their bureaucratic structures.

SOC 318 three credits
Russia and Eastern Europe

A survey of the societies of Russia and the former Soviet Union, as well as formerly socialist Eastern Europe, with an emphasis on recent social change and life today in these countries.

SOC 320 or ANT 320 three credits
Junior Seminar
Prerequisite: For juniors only; permission of instructor

Students will discuss and write papers on aspects of a subject chosen for the semester.

SOC 321 or ANT 321 three credits
Comparative Sociology of the Community
Prerequisite: SOC 101 or ANT 110, 111, or 113

An examination of various community forms with the aim of clarifying the nature of village, town and city forms in American society.

SOC 324 or ANT 324 three credits
Women in Contemporary Society

The roles and status of women in contemporary societies are examined using an historical and comparative approach. The course integrates theory of sexual inequality and its relation to other forms of social inequality and empirical analysis of the actual conditions of women. Women's participation in social movements in the U.S. and Third World countries is addressed as part of the analysis of the changing roles and statuses of women.

SOC 326 three credits
Latin America

A survey of the region with the emphasis on the areas where crisis, war, and U.S. involvement exist.

ANT 327 three credits
Myth and Ritual
Prerequisite: ANT 111 or 113

Exploration of the significance of myth and ritual and the history of their study. Myths and rituals of a world wide sample are analyzed from functional, structural, and symbolic points of view.

SOC 328 or ANT 328 three credits
Cultural Ecology

The study of culture and society from an anthropological and ecological approach, focusing on the interaction between human societies and their natural environment.

SOC 329 three credits
The Middle East

A survey of the region with an emphasis on the areas where crisis, war, and American involvement exist.

SOC 330 three credits
Blacks and Whites in America

A multimedia course focusing on the social and cultural similarities and differences between Blacks and Whites in America. National survey data, field studies, biographies, autobiographies along with novels and films are included among the materials analyzed. Students will also be taught the fundamentals of survey data analysis using personal computers.

SOC 331 three credits
Race and Ethnicity
Prerequisite: SOC 101 or 111 or 113

A study of the concepts of "race" and "ethnic group" and the role these concepts play in social interaction and social differentiation.

SOC 332 three credits
Sociology of Revolution

An analysis of why radical social change occurs, and of what factors drive many peoples of the 20th century towards revolution.

SOC 333 or ANT 333 three credits
Peoples of South Asia
Prerequisite: ANT 111 or SOC/ANT 113

Introduction to the variety of social systems found in South Asia, including India, Pakistan, Tibet, Nepal and Ceylon. The contrasts between wheat and rice farming areas, tribal and peasant societies, and highland and lowland peoples will be examined. The effects of industrialization will be considered. The value systems of Buddhism and Hinduism will be introduced.

SOC 334 three credits
Sociology of Food

A look at ancient and modern food production and its environmental impact. Diet and nutrition; population pressure and hunger; the politics of food; and, modern food processing and its implications are all subjects of study.

SOC 335 three credits
Social Policy
Prerequisite: SOC 101 or 203

An analysis of the relationship between social needs and societal response with an examination of the effectiveness of current policies in meeting human needs. The policies selected for analysis will be programs and provisions directed toward a specific population, e.g. elderly, women, etc. The policies to be studied will focus on a particular substantive area and may change with each semester that the course is offered.

SOC 336 three credits
Women and Social Policy

Family policy issues in the U.S. such as childcare, family leave, job equity, and marriage and family relationships. U.S. public policy is compared with that of other countries. Cross listed as WMS 336.

SOC 337 or ANT 337 three credits
Comparative Ethnic Relations

A comparative analysis of interracial and interethnic relations in various areas of the world including the U.S., Latin America, Africa, and Europe. An examination of the causes of inter-ethnic conflict, assimilation, ethnic solidarity, and changes in ethnic identity.

SOC 340 three credits
Law and Society

Investigation of problems in the sociology of law, including lawmaking processes; administration justice and correctional systems. Comparative analysis of legal systems and their administration.

SOC 342 three credits
Organization of Criminal Behavior
Prerequisite: SOC 101 or equivalent

Sociological approaches to the study of crime typologies. Criminal behavior is best explained when broken down into types. After discussing the construction of types of crimes, there will be an exploration of the systems within which criminal behavior develops.

SOC 345 or ANT 345 three credits
Human Evolution

A systematic and multidisciplinary approach to the origin and evolution of the human species from its primate ancestors. Topics include the evolutionary relationships of the various groups of modern primates, the divergence and physical evolution of the human lineage and origin of modern Homo Sapiens. In addition an attempt is made to correlate our knowledge of the behavior of the nonhuman primates, ethnography, fossils, and archeology SOC as to gain insights into the origins and evolution of human social behavior and our distinctive cultural adaptation.

SOC 349 three credits
The Computer and Data Analysis

An introduction to basic statistics and the use of the computer for data analysis. Students learn computer applications with the Statistical Package for the Social Sciences (SPSX) on the University mainframe computer. Computer work is closely supervised and conducted as a tutorial. Prerequisites: Social Science major, upper-division standing, or permission of instructor.
(Same course as PSC 349.)

SOC 350 or ANT 350 three credits
Readings in Sociological and Anthropological Literature I
Prerequisite: Permission of instructor

Directed readings and analysis in selected sociological topics.

SOC 351 or ANT 351 three credits
Readings in Sociological and Anthropological Literature II
Prerequisite: Permission of instructor

Directed readings and analysis in selected sociological topics.

SOC 352 three credits
Readings in Sociological Literature III
Prerequisite: Permission of instructor

Directed readings and analysis in selected sociological topics.

SOC 353 three credits
Readings in Sociological Literature IV
Prerequisite: Permission of instructor

Directed readings and analysis in selected sociological topics.

SOC 355 three credits
Social Work II
Prerequisite: SOC 203

The knowledge, values and skills that underlie social work practice. We will consider the roles that social workers assume, the settings in which they work and the methods of intervention that are used in working with individual, groups, and communities. Issues related to cross-cultural social work will also be explored.

SOC 356 three credits
Wealth, Status, and Power in America

The study of the various ways in which different societies assign their members to higher and lower positions of prestige, power, and possessions. A sociological analysis of the ways in which a person's stratified rank influences personality and life-opportunities in society.

SOC 357 three credits
Justice and Society
Prerequisites: SOC 101 or equivalent and junior status; or permission of instructor

An introduction to the wider cultural and legal contexts of the criminal justice system. The course draws on the sociology of law and the police, as well as the functioning of the courts in order to understand the concept of law, the notion of the "rule of law," due process, and the role of constraint in law enforcement in a democratic society.

SOC 358 three credits
Theory and Explanation
Prerequisites: SOC 101 or equivalent and upper-division standing

A review of the principal forms of explanation in the social sciences, including environmental, psycho-social, economic, and sociological. Application of these approaches is extended to various forms of behavior including crime and delinquency through the work of Durkheim, Lombroso, Freud, Merton, Sutherland, Lemert, Chambliss, and others.

SOC 360 or ANT 360 three credits
Structures of Power and Inequality
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

The many bases of inequality, including the artificial distinctions of age, sex, race, and hereditary position in a family line, occupation, ethnicity, and nationality. Talents and temperaments are often specialized to one sex, one class, one caste, etc. This course will explore what bases of inequality (whether one or many) are found within a number of social systems. These alternate social forms of inequality will be compared.

SOC 361or ANT 361 three credits
Peoples and Cultures of Europe
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

An examination of selected societies of Europe from an anthropological perspective, with special attention paid to rural-urban relations and to processes of transformation and development. An attempt will also be made to account for the similarities and differences of the peoples and societies studied.

SOC 362 or ANT 362 three credits
Peoples and Cultures of the World
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

Classic ethnographies and films of peoples in the pre-Columbian Americas, Africa, Melanesia and the Orient.
The course features cross cultural exploration through the works of anthropologists like Malinowski, Benedict, Evans-Pritchard and Levi-Strauss and of indigenous peoples like Black Elk.
The anthropological concepts and methods of the authors are contrast and effects of different levels of development on lifestyles are considered.

SOC 363 or ANT 363 three credits
Environment and Development
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

A search for social change which will improve conditions for all and be beneficial to the long-run survival and future of the planet and our human species. The course discusses action strategies for constructive group living by self-reliant participation in productive activities on local levels and beyond.

SOC 369 or ANT 369 three credits
Visual Symbols and Myth

A study of the underlying structure and content of visual symbols, myth, and ritual, and an analysis of the social implications of these systems.

SOC 381 three credits
Social Impact of Science and Technology

A look at the scientific and technological world views: the claim that tools are value-free, that knowledge (software, etc.) should be property; that natural and social reality should be quantified.

SOC 400 three credits
Special Topics
Prerequisite: Open to seniors electing the Criminal Justice option, or by permission of instructor

Selected topics such as juvenile delinquency, probation and parole, white collar crime, and related topics in criminal justice will be offered.

SOC 401 or ANT 401 three credits
Research Methods
Prerequisites: SOC 101 or ANT 111 or SOC 113 or ANT 113; and one advanced course in a social science.

Language and social inquiry; issues related to ideas of knowing, explaining, understanding, confirming, etc; valuative and effective elements in inquiry; empirical testability of propositions; quantitative and qualitative procedures of data collection and analysis; study of example cases.

SOC 402 three credits
Sociological Theory
Prerequisite: SOC 101 or SOC 113 or ANT 113; and one advanced sociology course.

The synthesizing and integrative functions of theory in the sociological enterprise. It seeks to awaken an awareness of the nature and role of concepts in theory construction, and to highlight the gains and losses which accrue in all linguistic statements about the world. The work of Marx, Durkheim, Weber, Veblen, Sorokin, G.H. Mead, and R.K. Merton are given special attention, both as pioneering examples of theoretical innovation and as substantive points of departure for future inquiry.

ANT 405 three credits
Anthropological Theory
Prerequisite: ANT 111 or ANT 113

An analysis of the major theoretical orientations of anthropologists toward the two central anthropological questions: the nature and origin of the human species and the nature and origin of culture and civilization.

SOC 406 three credits
Sociology of Art II

Interrelationships between art making and the social context in which art is made. The course will explore theoretical and methodological questions related to sociology of art and will then focus upon one period or problem, e.g., 19th century artistic responses to the rise of industrialization.

SOC 407 or ANT 407 three or six credits
Field Inquiry
Prerequisites: SOC 101 or ANT 111, or SOC 113 or ANT 113; and one advanced course in social science; and permission of instructor.

Research problem formulation, study design, and the gathering and analysis of data in Sociology and Anthropology, with primary emphasis upon field work. In addition to reading and seminar discussions, each student will participate throughout the seminar in supervised field inquiry. Interested students should talk with the instructor about field work possibilities and arrangements. Upon the approval of the instructor, students may register for either three or six semester hours in a single semester or three semester hours in each of two successive semesters.

SOC 408 three credits
Social Service Internship
Prerequisites: SOC 203, 355

This course will provide students with the opportunity to integrate social work theory with practice. Students will intern with an agency/organization in the community or on campus and will meet as a seminar to analyze and reflect upon their experiences and to further develop skills and knowledge about the social services in our society.

SOC 420 or ANT 420 three credits
Senior Seminar
Prerequisites: For seniors only; permission of instructor required

Students will discuss and write papers on aspects of a subject chosen for the semester.

SOC 430 three credits
Seminar on Advanced Problems in Sociological Theory I
Prerequisite: Permission of instructor

Selected theoretical problems, theorists or schools of thought examined in depth.

SOC 431 three credits
Seminar on Advanced Problems in Sociological Theory II
Prerequisite: Permission of instructor

Selected theoretical problems, theorists or schools of thought examined in depth.

SOC 450 three credits
Internship
Prerequisite: Senior sociology major or permission of instructor

Students registering for this course are placed in relevant positions in the criminal justice system, such as a parole office, court, or correctional facility, where their work will be supervised by an on-site sponsor as well as Departmental advisor.

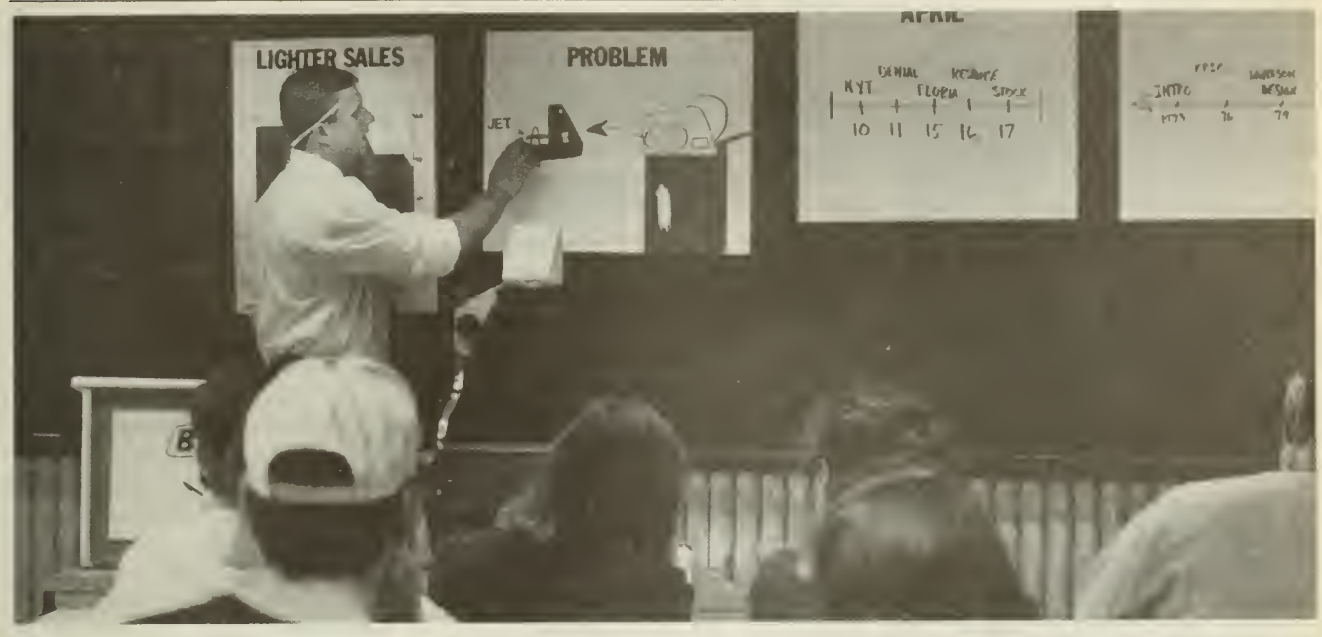
SOC 492 or ANT 492
Honors Research

SOC 495 or ANT 495
Independent Study

SOC 496 or ANT 496
Directed Study

SOC 900 or ANT 900
Contract Learning

College of Business and Industry



The College of Business and Industry serves three distinct and important stakeholders: undergraduate and graduate majors, students from other academic units in the university, and the broader professional and business community.

The College of Business and Industry offers eight undergraduate programs in two areas of study, business and textile science/manufacturing management, all leading to the Bachelor of Science degree. These programs are designed to prepare the graduate for careers in administration, research, and teaching; or for graduate study. The textile science/manufacturing management majors offer complementary studies in aspects of business, technology, and fashion merchandising .

The college also offers a minor in Business Administration that helps non-business majors acquire an understanding of business essentials.

The college administration and faculty have undertaken a comprehensive planning effort and developed a five-year strategic improvement plan. As a result, the UMass Dartmouth College of Business and Industry has been awarded candidacy *status* in the *American Assembly of Collegiate Schools of Business (AACSB) accreditation program.*

The accreditation process will bring with it significant curricular and pedagogical change. Students will engage in projects and case studies that involve all areas of business–marketing, management, finance, systems development, and accounting. Each student's studies will combine real breadth–through courses in arts, humanities, sciences, and social sciences; foundation knowledge in accounting, behavioral science, economics, and mathematics and statistics; oral and written communication–with the advanced specialization of a major field. Each student will also gain an understanding of ethical and global issues; political, social, legal, environmental, and technological issues; and the impact of diversity on organizations.

College Mission Statement

Congruent with the University's mission to educate for careers in the professions in both the business and public sector, the College of Business and Industry (CBI) endeavors to promote sustainable regional economic development by offering high quality, multidisciplinary educational programs and conducting research, particularly in applied areas, that enhances the growth and development of industrial and other societal enterprises. The CBI implements this mission by serving three distinct markets: undergraduate and graduate majors, students from other academic units in the University, and the broader professional and business community.

Our programs are designed to foster the development of broad skills and a problem- solving orientation that can be applied to all functional areas of management. The emphasis is to facilitate ethical achievement of institutional objectives, as well as broader national goals, through the analysis and advocacy of policies and practices that enhance organizational performance in an internationally competitive environment. Underlying the CBI programs is a philosophical recognition that globally competitive firms are flexibly managed, responsive to change, value high-quality innovation, and have cultures that regard employee involvement, creativity, and risk-taking.

We offer undergraduate business degrees in Accounting, Business Information Systems, Finance, Human Resource Management, Management, and Marketing; and an MBA degree at the graduate level. Undergraduate degrees in Manufacturing Management: Fibers and Textiles and Textile Chemistry as well as graduate degrees in Textile Technology and Textile Chemistry are offered to support the regionally prominent textile industry.

Our faculty are encouraged to place an emphasis on teaching excellence, engage in applied research and development, and participate in a range of professional activities, while rendering service to the College's and the University's constituents. The newly ratified contract mandates faculty evaluation in both teaching effectiveness and scholarly/professional activities [intellectual contributions] with a choice between academic and public service; however, the contract allows each discipline to link the effective weighting of each category to each discipline's mission. The College of Business and Industry's mission establishes teaching as a higher priority than scholarship and professional activities or service. Thus, in order of importance, the priorities within the College are: teaching effectiveness, scholarship and professional activities, and service.

Accreditation

The American Assembly of Collegiate Schools of Business, as part of its accreditation candidacy program for business schools, has approved the college's accreditation plan and granted the college candidacy status in its accreditation program.

Graduate Program

An M.B.A. program is offered by the College of Business and Industry. M.S. Degrees in Textile Chemistry and Textile Technology are offered in the Textile Sciences Department. Complete materials for these programs are available from the Graduate School.

General Requirements for Undergraduate Programs

The College's six business majors focus on interrelations among business enterprise, the economy, and society. Students develop skills in the use of quantitative data and theoretical tools in analyzing problems related to business and the economy. They are also assisted in developing the skills and intellectual capacities which foster mature and competent judgement.

Students enrolled as business majors complete a common program of study during the first two years. This lower-division program emphasizes a liberal arts background with courses in the humanities, mathematics, and both social and natural sciences. The objective of this approach during the first two years is to provide a foundation of work in those academic areas necessary for the appropriate combination of descriptive and analytical skill development to the study of business.

The College of Business and Industry is preparing for accreditation by American Assembly of Collegiate Schools of Business. In keeping with the requirements, the curriculum requires each student to complete a core of courses referred to as a common body of knowledge. The remaining program will complete the requirements in the student's selected major leading to the appropriate degree.

Each business student is required to complete the following courses:

Courses offered outside the College

ENL 101, 102
Critical Writing and Reading I & II

MTH 101, 102
Elements of College Math I & II

ECO 231, 232
Economics I & II

ENL 265
Business Communications

MTH 231, 232
Statistics I & II

Courses offered within the College

BIS 101
The Business Organization

ACT 211, 212
Principles of Accounting I & II

MGT 312
Legal Framework of Business

FIN 312
Business Finance

MKT 311
Principles of Marketing

BIS 315
Information Systems
(Accounting majors are required to take ACT 355 Accounting Information Systems in lieu of BIS 315)

MGT 311
Organizational Behavior

MGT 333
Management Science I

MGT 411
Strategic Management and Policy Formulation

MGT 444
Production and Operations Management

In addition, each business major program stipulates that students must complete a selection of general-education courses through a distribution requirement. The specific course selection requirements differ somewhat in the various majors; hence, the listings of those requirements are incorporated in the sections describing the program for each major. The business majors have, however, all adopted a common definition of what constitutes allowable course selections for the categories of the distribution course requirements:

Humanities electives: all courses in the departments of English, Foreign Language (except MLG 324), History, and Philosophy; non-studio courses in the College of Visual and Performing Arts with prior approval of advisor. Studio or performance courses do not fulfill this requirement.

Social Science electives: all courses in the departments of Economics, Political Science, Sociology/Anthropology, and Psychology.

Natural or Applied Sciences: all courses in the departments of Biology, Chemistry, Physics and Mathematics, except courses listed as a laboratory research project, seminar, independent study, thesis, contract learning, or directed study if less than three credits.

Transfer of Community and Junior College Credit

Generally, lower-level business course credits (first and second year courses) can be transferred from junior and community colleges, assuming the course work is comparable to that offered at UMass Dartmouth. All transfer credits to apply toward the degree are given at the discretion of the College.

The following courses from Bristol Community College will be accepted as equivalent to the following UMass Dartmouth courses:

Bristol Community College:

MAN 11
Principle of Management
ACC 11, 12
Accounting I & II
BUS 51
Business Law
BUS 53
Corporation Finance
MAN 51
Human Resource Management
MAR 11
Principles of Marketing
CPR 11/CIS 11)
Introduction to Data Processing

UMass Dartmouth:

MGT 311
Organizational Behavior
ACT 211, 212
Accounting I & II
MGT 312
Business Law
FIN 312
Business Finance
HRM 301
Human Resource Management
MKT 311
Principles of Marketing
BIS 101
The Business Organization

Comparable courses from other community colleges will also be accepted as equivalent to these UMass Dartmouth courses.

Transfer students must comply with the university requirement to complete at least 60 credits at UMass Dartmouth. Furthermore, a student needs to complete at least 45 credits of upper-level business courses at UMass Dartmouth.

Business Administration Minor

Coordinator

Robert Witherell,
Professor of Marketing and
Business Information Systems

Admission to the minor

Any undergraduate degree candidate who has declared a major, has completed 54 credits toward the degree, and has at least a 2.5 cumulative grade point average may be admitted to the minor in business administration. Application for admission should be made to the program coordinator.

The College of Business and Industry offers a minor in Business Administration to non-business majors. The objective of this minor is to help the students acquire an understanding of business essentials to supplement their own areas of expertise. The minor is designed to open educational and career opportunities for the non-business student, and is appropriate for students with no previous experience or training in business.

Furthermore, the completion of a minor in business administration will satisfy part of the foundation requirements of the first year of the Master of Business Administration program at the university. Additional information about these requirements is available from the office of the Dean, College of Business and Industry, or from the coordinator of the minor program.

Requirements

Complete the following course		Credits
ECO 231	Economics I	3
Select six courses from the following		18
ACT 211	Principles of Accounting I	
ACT 212	Principles of Accounting II	
BIS 315	Information Systems	
FIN 312	Business Finance	
HRM 301	Human Resource Management	
MGT 311	Organizational Behavior	
MGT 312	Legal Framework of Business	
MGT 444	Operations Management	
MKT 311	Principles of Marketing	
	Total:	**21**

At least five of these courses must be completed at UMass Dartmouth.

Course descriptions will be found in the appropriate sections of the *Catalogue*.

Accounting and Finance

The Department of Accounting and Finance offers two major programs leading to the Bachelor of Science Degree. The candidate for either major must satisfactorily complete one of the specified curricula.

Faculty and Fields of Interest

Beryl Barkman accounting, accounting education

Michael Griffin finance, investments

Raymond Jackson finance

Frederick Jones accounting, information systems

Ramakrishnan Koundinya financial markets, capital budgeting, financial theory, international finance

Jeanne H. LaFond accounting theory and taxation

Helen LaFrancols accounting, taxation

Lawrence B. Logan management accounting, non-profit accounting

Kooros Maskooki finance

Robert Oxman accounting, taxation

K. Raghunandan auditing, accounting theory

D.V. Rama accounting information systems, accounting education

J. Roland Richard (chairperson) accounting, auditing

Accounting Major

BS degree

The accounting profession plays an essential role in a modern economy by providing a flow of financial information necessary for effective management of current operations and for future planning. Accounting serves to maintain a system of checks and balances to facilitate the supervision of an organization so that errors, fraud, and waste are minimized. Accountants also play a key role in setting and enforcing standards of performance. Information developed by the specialized skills of an accountant is a vital component in the strategic planning of future operations of commercial enterprises as well as for non-profit organizations and government agencies.

The curriculum is designed to acquaint students with the philosophy of accounting, to give them a comprehension of accounting theory, to develop their skills in applying accounting techniques, and to nurture within them a professional attitude. Particular attention is given to the setting up of complex systems and the development and interpretation of accounting data.

A graduate is prepared for employment as a public or private accountant and to eventually attain professional standing as a Certified Public Accounting (CPA) or as a Certified Management Accountant (CMA). An undergraduate accounting major is also well-prepared to enter graduate school in the fields of management, law and related disciplines.

Requirements

		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Mathematics I, II	3	3
BIS 101	The Business Organization		3
	Natural or Applied Science Electives	3	3
	Humanities/Social Science Electives	6	3
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
MGT 312	Legal Framework of Business	3	
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communications		3
	Humanities/Social Science Electives	3	3
		15	**15**
Third Year			
ACT 311, 312	Intermediate Accounting I, II	3	3
ACT 351	Cost Accounting		3
ACT 355	Accounting Information Systems		3
MGT 333	Management Science I	3	
MGT 444	Production and Operations Management		3
FIN 312	Business Finance	3	
MKT 311	Principles of Marketing	3	
MGT 311	Organizational Behavior		3
	Free Elective	3	
		15	**15**
Fourth Year			
ACT 401	Auditing		3
ACT 411, 412	Taxation I, II	3	3
ACT 421	Advanced Accounting		3
ACT 452	Special Topics	3	
MGT 411	Strategic Management & Policy Formulation	3	
	Business Elective*		3
	Humanities/Social Sciences Electives	3	3
	Non-Business Elective	3	
		15	**15**
	Total credits:		**120**

*
Business elective must be a 300- or 400-level course in the College of Business and Industry

ACT 211 three credits
Principles of Accounting I

Accounting concepts and procedures are studied through the analysis, classification, recording, and summarizing of business transactions. Financial statements are introduced and shown to be a source of essential information for management and others outside of the business.

ACT 212 three credits
Principles of Accounting II
Prerequisite: ACT 211

A continuation of ACT 211. Accounting for partnerships and corporations, accounting for manufacturing firms and analysis and interpretation of financial statements. Statement of changes in financial position is introduced.

ACT 311 three credits
Intermediate Accounting I
Prerequisites: ACT 212 and at least junior standing

An overview of the entire accounting process designed to provide a gradual transition from the introductory course to a more rigorous level of analysis. A critical evaluation of the traditional accounting concepts as they pertain to current assets, current liabilities, and plant assets is encouraged and correlated with the latest pronouncements of the Financial Accounting Standards Board.

ACT 312 three credits
Intermediate Accounting II
Prerequisites: ACT 311 and at least junior standing

A study of procedures and tools that are used in gathering information for both financial and managerial accounting. The major concepts in measuring costs under job-order cost and process-cost systems, the application of standard costs, budget preparation and use, and decision-making situations that require accounting data are emphasized.

ACT 351 three credits
Cost Accounting
Prerequisites: ACT 212 and at least junior standing

A study of procedures used to measure costs under the job order cost and process cost systems; standard costs and budgeting also covered.

ACT 355 three credits
Accounting Information Systems
Prerequisites: ACT 212 and at least junior standing

A detailed study in the use of the systems approach and the use of the computer in supplying accounting information to a business enterprise.

ACT 401 three credits
Auditing
Prerequisites: ACT 312 and at least junior standing

A study of the audit function as performed by the outside public accounting firm. All stages are covered: planning the audit, gathering evidence, review of internal control provisions, development of working papers, analysis of accounts, preparation of statements, and final audit report. The ethics of the accounting profession are stressed throughout the course.

ACT 410 three credits
Federal Tax Accounting
Prerequisites: ACT 212 and at least junior standing

Overview of the federal, state and local tax laws as they apply to individuals and businesses. This course focuses on specific tax laws which apply to individuals, partnerships and corporations, with emphasis on tax planning rather than preparation of the specific tax forms.

ACT 411 three credits
Taxation I
Prerequisites: ACT 212 and at least junior standing

Federal Income Tax problems confronting the individual taxpayer, including the self-employed individual.

ACT 412 three credits
Taxation II
Prerequisites: ACT 411 and at least junior standing

A continuation of ACT 411 with emphasis on the preparation of partnership and corporation tax returns.

ACT 421 three credits
Advanced Accounting
Prerequisites: ACT 312 and at least junior standing

A study of special accounting areas including: retail land sales, franchising, business combinations, foreign operations, partnerships, insolvency, governmental, and estates and trusts.

ACT 452 three credits
Special Topics
Prerequisites: ACT 312 and senior standing

To cover the more specialized areas which ordinarily require more in-depth analysis and knowledge of the more recent accounting pronouncements. These areas involve pension, leases, tax allocation, financial analysis, and inflation accounting. Also any specific areas receiving current attention in accounting pronouncements will be discussed.

ACT 453 three credits
International Accounting
3 hours lecture
Prerequisites: ACT 312 and at least junior standing

This course provides a basic understanding of the multinational corporation and the multinational world in which we live. The purpose of the course is to educate and expose the students to the magnitude of international activity in present day society. The course examines the causes of international variation in accounting practices and the problems which this variation creates for accountants, managers, investors and credit grantors. Interdisciplinary focus on understanding the political economy and social influences on accounting is emphasized. An understanding of other cultures is stressed.

ACT 495
Independent Study

ACT 496
Directed Study

ACT 900
Contract Learning

Finance Major
BS degree

Requirements

Semester Credits

The curriculum in finance seeks to develop an understanding of the role played by finance in various organizations. Finance deals with the acquisition and management of resources to accomplish organizational objectives within an acceptable risk/return profile. The financial manager decides how to raise funds in the capital markets and how best to invest these funds in order to accomplish organizational objectives. To accomplish these tasks the discipline of finance has developed a sophisticated set of analytical tools that bring together concepts from a variety of sources such as economics, accounting and mathematics. The concepts and techniques developed in finance are equally applicable to not-for-profit organizations that must also raise and invest funds in an efficient manner. Those skilled in financial analysis play a central role in deciding such current issues as mergers, buyouts and international investments.

		First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Mathematics I, II	3	3
BIS 101	The Business Organization		3
	Humanities/Social Science Electives	6	6
	Natural or Applied Science Elective	3	
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
MGT 312	Legal Framework of Business	3	
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communications		3
	Natural or Applied Science Elective	3	
	Humanities/Social Science Elective		3
		15	**15**
Third Year			
FIN 312	Business Finance	3	
MKT 311	Principles of Marketing	3	
FIN 381	Money, Banking, & Economic Activity		3
FIN 385	Applied Capital Budgeting	3	
FIN 398	Financial Institutions		3
MGT 311	Organizational Behavior		3
MGT 333	Management Science I	3	
MGT 444	Production and Operations Management		3
	Business Electives*	3	3
		15	**15**
Fourth Year			
FIN 483	Investment Analysis	3	
ACT 410	Federal Tax Accounting		3
FIN 485	Seminar		3
FIN 493	Financial Management of Corporations	3	
FIN 494	International Financial Management		3
MGT 411	Strategic Management & Policy Formulation	3	
	Economics Elective		3
	Free Elective	3	
	Humanities/Social Sciences Electives	3	3
		15	**15**
	Total credits:		**120**

*
Business elective must be a 300- or 400-level course in the College of Business and Industry.

FIN 312 three credits
Business Finance
Prerequisites: ACT 212, ECO 231 and at least junior standing

An introduction to the nature of financial management. The course presents the basic tools used in the decision-making process as they pertain to the acquisition, management, and financing current and long-term assets. Working capital policies, the time value of money, capital budgeting, and debt and equity financing are discussed.

FIN 320 three credits
Personal Finance

An introduction to the financial planning process of setting goals, developing action plans, creating budgets and measuring results. The student will become familiar with the techniques of financial analyses necessary to make choices when considering housing, insurance, retirement plans, borrowing and other personal finance issues.

FIN 381 three credits
Money, Banking, and Economic Activity
Prerequisites: FIN 312 and at least junior standing

The nature and functions of money and commercial banking and their historical development in the United States.

FIN 385 three credits
Applied Capital Budgeting
Prerequisites: FIN 312 and at least junior standing

A study of theoretically valid and readily-applied methods of capital budgeting for business and government organizations. Complexities such as risk, timing and measurement problems dealt with only briefly in introductory courses are examined more fully. Capital budgeting considerations in government organizations not presented in the current finance curriculum will be discussed thoroughly.

FIN 397 three credits
Financing Forecasting Methods
Prerequisites: FIN 312 and at least junior standing

A study is made of the dynamic forces on economic activity. National income accounting and analysis, economic indicators and measures, forecasting for the economy of the firm, and problems of stability and growth are considered.

FIN 398 three credits
Financial Institutions
Prerequisites: FIN 312 and at least junior standing

A detailed study of the operations of financial institutions and the interrelationships between their operations and economic activity. Emphasis is placed on the effect of economic forces, regulation and technological change on the operations of these institutions.

FIN 483 three credits
Investment Analysis
Prerequisite: FIN 312 and at least junior standing

Method and techniques of determining investment merit of various types of securities. Bonds, preferred stocks and common stocks in various types of investment portfolios are studied. The effect of the business cycle on investment policy will be examined and the importance of timing investment commitments will be stressed. The investment techniques of fundamental analysis, technical analysis and efficient market theory are carefully implored.

FIN 485 three credits
Seminar
Prerequisites: FIN 312, 381, 385, 398 and senior Finance major

A conference course for students doing research or preparing thesis related to the field of Finance.

FIN 493 three credits
Financial Management of Corporations
Prerequisites: FIN 312 and at least junior standing

Advanced work in the management of corporate funds. Selected topics from the various fields of financial activity with emphasis on trends, current problems and research are studied. The topics emphasized include: capital expenditure policies, long-term and short-term financing problems, dividend policies, mergers and consolidations, and trends in financial markets.

FIN 494 three credits
International Financial Management
Prerequisites: FIN 312 and at least junior standing

Basic understanding of the forces that affect the relative value of currencies in international markets, and discusses the major problems encountered by the firm in financing international operations.

FIN 495
Independent Study

FIN 496
Directed Study

FIN 900
Contract Learning

Management and Human Resources

The Department of Management and Human Resources offers major programs leading to a Bachelor of Science Degree in Management and in Human Resources Management.* The candidate for either major must satisfactorily complete one of the specified curricula.

*
Freshman admission to this program is suspended as of Fall 1993.

Faculty and Fields of Interest

William R. Allen strategic management, organizational behavior, human resources management

Peter H. Cressy (chancellor of the university) human resource management, organizational behavior, leadership

James Dorris organizational/communication/behavior

Walter O. Einstein organizational behavior, strategic management

Helen S. Fine operations management, strategic management, technology transfer

Harold L. Gilmore strategic management, organizational behavior

Richard F. Golen (chairperson) business law, computer law, human resource management law

Thomas J. Higginson industrial/labor relations, operations management

Peter B. Hodges strategic management, small business management

Harvey Kahalas industrial competitiveness, organizational restructuring, business and society

Bulent Kobu operations management, quantitative analysis, quality and productivity management

Richard D. Legault quantitative analysis, operations management, quality and productivity management

Ronald D. McNeil (dean of the college) strategic planning, organizational development and change, entrepreneurship

Kathleen Suchon strategic management, human resources management, ethics

Ercan Tirtiroglu management science, statistics, information theory, quality control, and marketing science

Richard J. Ward managerial economics, international business management

Management Major

BS degree

The management curriculum offers students a comprehensive background in the planning, controlling, organizing and communicating skills necessary to manage business and not-for-profit organizations. This major places special emphasis on courses which develop analytical decision-making abilities.

Management graduates are currently pursuing careers in manufacturing, service, retail, human services, educational and governmental organizations. Many also have gone on to graduate studies.

Requirements		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Math I, II	3	3
BIS 101	The Business Organization	3	
	Humanities or Social Sciences Electives	3	6
	Natural/Applied Sciences Electives	3	3
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communications		3
	Humanities/Social Sciences Electives	6	3
		15	**15**
Third Year			
MGT 311	Organizational Behavior		3
MGT 312	Legal Framework of Business	3	
MGT 333, 334	Management Science I, II	3	3
MKT 311	Principles of Marketing		3
FIN 312	Business Finance		3
BIS 315	Information Systems	3	
HRM 301	Human Resource Management	3	
MGT 325	Managerial Economics	3	
	Business Elective*		3
		15	**15**
Fourth Year			
MGT 411	Strategic Management & Policy Formulation		3
HRM 331	Industrial Relations & Labor Management	3	
MGT 444	Production & Operations Management	3	
MGT 445	Productivity & Quality Improvement		3
	Business Electives	3	6
	Free Electives	3	3
	Humanities/Social Sciences Elective	3	
		15	**15**
	Total credits:		**120**

* Business elective can be any 300- or 400- level course in the College of Business and Industry.

MGT 311 three credits
Organizational Behavior
Prerequisite: junior standing

The importance of understanding human characteristics as well as technological and economic concepts in building a sound management policy.

MGT 312 three credits
Legal Framework of Business
Prerequisites: At least junior standing for MGTs, HRM, BIS majors; at least sophomore standing for ACT, FIN majors.

This course is designed to provide the business major with an overview of the legal environment of business. Materials to be presented include not only the traditional topics of contracts, agency and tort law, but also include labor law, securities law, etc. At the end of this course, the student will have a general background in the major aspects of the law as it affects the daily business environment.

MGT 325 three credits
Managerial Economics
Prerequisite: MTH 231, 232; ECO 231, 232 and at least junior standing

Using economic analysis in formulating and solving management problems. Effectively integrates economic analysis and the management viewpoint.

* May be used as business electives, all majors.

MGT 333 three credits
Management Science I
Prerequisites: MTH 101, 102 and MTH 231, 232, and junior standing

A general introduction to various quantitative models and techniques used in business analysis. The main objective of the course is to familiarize the student with the fundamentals of standard management science topics such as linear programming problem formulation along with graphical and simplex methods; forecasting, decision analysis, inventory control and PERT/CPM networks. The use of microcomputers is required.

MGT 334 three credits
Management Science II
Prerequisite: MGT 333

Continuation of topics from MGT 333 in greater depth and breadth. Some extensions of linear programming including its sensitivity analysis using the simplex solution method, and transportation and assignment algorithms; game theory; Markov analysis; queueing theory and simulation are among the topics of the course. The use of microcomputers is required.

MGT 365 three credits*
Managerial Psychology
Prerequisites: MGT 311 and at least junior standing

Human problems within the supervisory and managerial levels of a business. Extensive emphasis is placed on the psychology of the manager and the managed.

MGT 411 three credits
Strategic Management and Policy Formulation
Prerequisites: MGT 311, 333, 444, FIN 312, BIS 315 or ACT 355, MKT 311 and senior level standing

Upper-level management problems in business. It encompasses all basic business fields and gives the student an opportunity to develop managerial decision-making procedures and abilities.

MGT 431 three credits*
Productivity Management/Quality of Work Life
Prerequisites: MGT 311 and senior standing

Principles of and approaches to methods engineering, work simplification, job enrichment, time study and their relationship to wage payment systems and the cost elements.

MGT 444 three credits
Production and Operations Management
Prerequisites: MGT 333, and at least junior standing

The functions governing the production of goods and services. Topics include the design of production systems, forecasting, inventory control, capacity planning, operations strategy, productivity and managing for quality. While mathematical models are developed and computers are used, the course is designed to integrate quantitative with qualitative methodologies.

MGT 445 three credits
Total Quality Improvement
Prerequisite: MGT 444

Principles and practices underlying the continuous improvement of quality in the business and non-business enterprise. Particular attention is given to philosophies and methods of organizing for quality, and to tools for quality improvement including statistical quality control. The instructional approach is highly experiential and interactive, and features contact with quality systems and professionals in the field.

MGT 461 three credits*
Management Seminar
Prerequisite: MGT 311, 333, 444, FIN 312; BIS 315 or ACT 355, and senior standing

Readings and discussion of important research and literature in student's particular field of interest, culminating in a major written paper.

MGT 462 three credits*
Small Business Seminar I
Prerequisite: Senior level standing

Through a cooperative arrangement, student teams do actual business consulting for real companies.

MGT 463 three credits*
Small Business Seminar II
Prerequisites: MGT 462 and senior standing

Additional actual contact with real businesses, but in the role of consultant to other student teams.

MGT 495
Independent Study

MGT 496
Directed Study

MGT 900
Contract Learning

Human Resources Management Major*
BS degree

The curriculum provides specialized knowledge and an appreciation for the management of people in organizations. As the world becomes smaller and more advanced technologically, the need for skills in managing interpersonal conflict becomes more pronounced. An understanding of the legal, moral and ethical implications of managerial action is vital, as is the development of a variety of skills involved in managing in union and non-union organizations.

Relevant courses from the social sciences are integrated with specialized management and labor relations courses to prepare students for human resource management positions in manufacturing, service and governmental organizations.

Advisors work with junior and senior students to plan a program of courses that support specific personnel management career goals.

There is ample opportunity to expand the student's understanding of the arts, humanities, social and natural sciences. It is recommended as a general prescription that the student explore humanities and social sciences electives in the areas of sociology, anthropology, and social psychology and seek to concentrate on understanding human behavior.

*
Effective Fall 1993
Freshman admission
to this program
is suspended.

Requirements

Semester Credits

		First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Math I, II	3	3
BIS 101	The Business Organization	3	
	Humanities/Social Sciences Electives	3	6
	Natural/Applied Sciences Electives	3	3
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communications		3
	Humanities/Social Sciences Electives	6	3
		15	**15**
Third Year			
MGT 311	Organizational Behavior	3	
MGT 312	Legal Framework of Business	3	
MGT 333	Management Science I	3	
BIS 315	Information Systems	3	
MKT 311	Principles of Marketing		3
FIN 312	Business Finance		3
HRM 301	Human Resources Management	3	
HRM 331	Industrial Relations & Labor Management		3
	Humanities/Social Sciences Elective		3
	Free Elective		3
		15	**15**
Fourth Year			
MGT 411	Strategic Management & Policy Formulation	3	
HRM 452	Legal Aspects of HRM	3	
MGT 444	Production and Operation Management	3	
HRM 443	Human Resources Development		3
HRM 461, 462	Seminar in HRM I, II	3	3
	Business Elective*		3
	Human Resource Management Electives	3	3
	Free Elective		3
		15	**15**
		Total credits:	**120**

* Business elective can be any third- or fourth-year course in the College of Business and Industry.

Human Resources Management Courses

* Human Resources Management Electives; these courses and HRM 452 may be used as business electives by non-HRM majors.

HRM 301 three credits
Human Resources Management
This course is a prerequisite for all Human Resource courses.
Prerequisite: junior standing

An exploration of that part of management devoted to a people-centered approach and its integration with overall goals of organization. Emphasis is placed on employment, compensation, and training and development of individuals.

HRM 331 three credits
Industrial Relations & Labor Management
Prerequisites: HRM 301 and at least junior standing

Social background and present status of labor organizations. It emphasizes the many labor-management problems that are evident today and aims to help the student understand the various techniques employed in collective bargaining procedures.

HRM 435 three credits*
Negotiation, Mediation and Arbitration
Prerequisites: MGT 311, HRM 331 and at least junior standing

Student participation in case studies in resolving disputes and grievances in labor relations. The nature of collective bargaining practices and agreements and the arbitration process are examined.

HRM 436 three credits*
History of the Labor Movement
Prerequisites: MGT 311, HRM 331 and at least junior standing

The history and current nature of organized labor; the structure, policies, and practices of modern labor unions.

HRM 443 three credits
Human Resources Development
Prerequisites: MGT 311, HRM 331 and at least junior standing

A study of how to relate the human resources of organizations with the policies and practices of management. The need to motivate and develop people in pursuit of organizational goals is emphasized.

HRM 452 three credits
Legal Aspects of Human Resources Management
Prerequisites: MGT 312, HRM 301 and at least junior standing

The laws affecting personnel practices. Areas such as recruiting, hiring, affirmative-action, performance appraisal, and discrimination in the workplace are studied.

HRM 461 three credits
Seminar in Human Resources Management
Prerequisites: HRM 331 and senior standing

A conference course for students doing research or developing a specialized interest related to the field of industrial relations. Frequent field trips and outside lecturers from business are involved.

HRM 462 three credits
Seminar in Human Resources Management II
Prerequisites: HRM 461 and senior standing.

A continuation of HRM 461

HRM 495
Independent Study

HRM 496
Directed Study

HRM 900
Contract Learning

Marketing and Business Information Systems

The Department of Marketing and Business Information Systems offers major programs leading to bachelor of science degrees in Marketing and Business Information Systems.

Faculty and Fields of Interest

Thomas L. Ainscough principles of marketing and information technology

David L. Antes advertising and promotional strategy

Nora Ganim Barnes marketing research, consumer behavior

John A. Chopoorian (chairperson) international marketing, distribution and sales management

Leslie Dawson sales management, industrial marketing

Roger J. Deveau systems analysis and design, business information systems, end user computing

Fahri Karakaya consumer behavior, marketing research, marketing management

Omar E. M. Khalil management information systems

Merritt LaPlante marketing management and research

Robert Witherell management systems, computer technology

Business Information Systems Major

BS degree

The Business Information Systems program of study is designed to prepare students for one of the most rapidly expanding professions in the business world.

BIS prepares the student both to analyze an organization's information systems structure and to design and implement that system. This major offers a broad educational experience in business, computer applications, the humanities, and social sciences.

The primary emphasis of the UMass Dartmouth program is the application of the "systems approach" to business problem-solving and decision-making. Analysis of both on-campus and off-campus "real-life" business systems provides students with practical experience and increases their value in the professional career market.

Business Information Systems majors differ from computer science majors in emphasizing applications of computer systems over their development and analysis. The applications are focused on complex business needs in organizations. BIS majors conceptualize, design, and implement high quality business systems and build bridges between technical realities, organizational functions, and decision-making by managers.

Requirements

Semester Credits

		First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Math I, II	3	3
BIS 101	The Business Organization	3	
	Humanities/Social Sciences Electives	3	6
	Natural/Applied Sciences Electives	3	3
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communication	3	
BIS 201, 202	End-User Software/Problem Solving	3	3
	Humanities/Social Sciences Elective		3
		15	**15**
Third Year			
MGT 311	Organizational Behavior	3	
MGT 312	Legal Framework of Business		3
MGT 333	Management Science I	3	
BIS 315	Information Systems	3	
FIN 312	Business Finance		3
MKT 311	Principles of Marketing		3
BIS 322	Business Systems Analysis and Design	3	
BIS 332	Business Data Systems	3	
BIS 441	Data Communication Systems and Networks		3
	Humanities/Social Sciences Elective		3
		15	**15**
Fourth Year			
MGT 411	Strategic Management and Policy Formulation	3	
MGT 444	Production and Operations Management		3
BIS 316	Management of Information Systems		3
BIS 462	Advanced BIS Projects	3	
	BIS Elective	3	
	Humanities/Social Sciences Elective	3	
	Non-Business Elective Elective		3
	Free Electives	3	6
		15	**15**
	Total credits:		**120**

Business Information Systems Courses

BIS 101 three credits
The Business Organization
2 hours lecture, 1 hour laboratory

The broad spectrum of the modern business enterprise, emphasizing the systems approach. Each functional area of the business organization is examined as well as the significant role the humanities and social sciences play in understanding the nature of effective business decision-making. A laboratory experience reinforces skills in computing tools such as word-processing, spreadsheets, databases, and other applications software.

BIS 201 three credits
End-User Software Applications
Prerequisite: BIS 101

Emphasizes computer competency in the use of personal computers in the modern business environment. Personal productivity applications involving spreadsheet analysis, database construction, and advanced word-processing applications are studied.

BIS 202 three credits
Problem Solving and Programming
Prerequisite: BIS 201

A study of the programming environment using COBOL and other appropriate languages (such as RPG). Topics include problem solving of business related issues using the techniques of structured program design. Students begin with simple input/output programs, and progress to more difficult programs as they become accustomed to using structured programming.

BIS 315 three credits
Information Systems
Prerequisites: BIS 101 and junior standing

Principles of computerized information systems designed for students with prior knowledge of data processing and computer technology. Emphasis is placed on the components of these systems and their roles throughout the business organization: automating record keeping, improving management control, supporting decision making.

BIS 316 three credits
Management of Information Systems
Prerequisite: BIS 315 or equivalent

Technical tools and management concepts required in the administration of the information systems function. Topics include the structure and management of computer operations, measurement of operating performance, budgeting and planning, project management techniques for systems and programming, personnel selection, training and compensation, and the role of the information systems processing manager.

BIS 322 three credits
Business Systems Analysis and Design
Prerequisites: BIS 315 and at least junior standing

This course is designed for the advanced Business Information Systems student and will provide a basic understanding of the process of analyzing and designing a business system for implementation on a computer. The entire spectrum of system analysis and design will be covered, beginning with the first request for a system study and continuing through with feasibility and fact- gathering stages, the analysis phase, the design phase, and the implementation and maintenance phases of a business data processing system.

BIS 332 three credits
Business Data Systems
Prerequisites: BIS 315 and junior standing

A study of how a centralized Data Base Management System (DBMS) is constructed and applied to the management of information within a complex business organization. Using the latest computer technology, students will learn how to organize data, internal and external to the business organization, in order to meet the information needs of managers and decision makers. Students will also be introduced to the significant issues surrounding the choice of available DBMS software and to the process for fitting industry standard software to specific organizational settings.

BIS 441 three credits
Data Communications Systems and Networks
Prerequisites: BIS 332 and at least junior standing

This course is designed to show students how individual computers and groups of computers can be linked together via telecommunication networks to form optimally performing, integrated computer networks. Emphasis is placed on how such networks make the best use of available computer resources while also providing computer system users with information of the highest value at the lowest cost. The course also examines the communications environment, regulatory issues, and network pricing and management.

BIS 451 three credits
Management of End-User Computing
Prerequisites: BIS 315 and senior standing

Theoretical and conceptual framework of end-user computing. The development of management information systems skills to guide end users in applications, analysis, hardware configuration selection, software package selection, training and applications development are stressed. This course also addresses the need for the effective and efficient use and management of information at all levels of the business organization.

BIS 453 three credits
Computer Law
Prerequisites: BIS 101, MGT 312 and at least junior standing

The legal issues relating to computers and their use in modern society. Topics to be covered will include: contracts for computer services such as sales and leasing; intellectual property areas such as software protection, licensing, copyrighting, etc.; tort and constitutional areas dealing with rights of privacy; criminal areas dealing with computer crime, and tax law issues of computer hardware/ software.

BIS 462 three credits
Advanced Business Information Systems Projects
Prerequisites: BIS 332, 322 and senior standing

Students are divided into task groups, each taking on a specific business-related information system-based problem. Students will be involved in the preparation of a systems study and needs analysis, and the creation of any necessary applications programming. This is the keystone course to the Business Information Systems Program.

BIS 495
Independent Study

BIS 496
Directed Study

BIS 900
Contract Learning

Marketing Major
BS degree

The marketing curriculum is designed to prepare students for successful careers in the many phases of marketing and distributing products and services throughout the economy.

Courses are oriented toward problem-solving and management decision-making. The total curriculum emphasizes knowledge and competence in marketing that will enable the program's graduates to progress well in the early stages of their careers; to develop the ability to analyze, plan, organize, coordinate, motivate and control; to think creatively; to communicate effectively, and to gain broad perspectives essential to the attainment of ownership or executive management responsibilities. Graduates are prepared for career opportunities such as research analysts, sales managers, directors of marketing programs, or professional sales personnel.

There are also opportunities for students to gain actual work experience through Omniad, a student-run advertising agency, and the International Business Association. See Student Handbook for information about these two organizations. In some cases, upon consultation with the department chair or student's advisor, academic credit may be available for these study-travel or work experiences.

Requirements

Semester Credits

		First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Math I, II	3	3
BIS 101	The Business Organization	3	
	Humanities or Social Sciences Electives	3	6
	Natural or Applied Sciences Electives	3	3
		15	**15**
Second Year			
ACT 211, 212	Principles of Accounting I, II	3	3
ECO 231, 232	Economics I, II	3	3
MTH 231, 232	Statistics I, II	3	3
ENL 265	Business Communications		3
	Humanities/Social Sciences Electives	6	3
		15	**15**
Third Year			
MGT 311	Organizational Behavior	3	
MGT 312	Legal Framework of Business	3	
	Business Elective		3
MGT 333	Management Science I	3	
MKT 311	Principles of Marketing	3	
MKT 331	Promotional Strategy		3
FIN 312	Business Finance		3
BIS 315	Information Systems	3	
	Marketing Elective		3
	Humanities/Social Sciences Electives		3
		15	**15**
Fourth Year			
MGT 411	Strategic Management & Policy Formulation	3	
MKT 441	Marketing Management	3	
MKT 442	Marketing Research		3
	Marketing Electives	6	3
	Business/Marketing Elective		3
MGT 444	Production and Operations Management		3
	Humanities/Social Sciences Elective		3
	Free Elective	3	
		15	**15**
		Total credits:	**120**

MKT 311 three credits
Principles of Marketing
Prerequisites: ECO 231 and junior standing

A basic understanding of the role and scope of responsibilities facing contemporary marketing management. Emphasis is placed on the integration of marketing principles into an organized approach for decision making.

MKT 331 three credits
Promotional Strategy
Prerequisites: MKT 311 and junior standing

Basic understanding of the factors affecting promotional decisions as well as the role of promotional effort in market strategy planning. The basic principles of advertising, sales promotion and personal selling are integrated.

MKT 354 three credits
Retail Management
Prerequisites: MKT 311 and junior standing

An examination of the basic concepts fundamental to understanding the retail environment and the operation of retail firms.

MKT 358 three credits
Fashion Merchandising
Prerequisites: MKT 311 and junior standing

An examination of the knowledge and skills which fashion buyers need to make decisions. The fashion operations of various retail stores are observed and analyzed.

MKT 360 three credits
Industrial Marketing
Prerequisites: MKT 311 and junior standing

A study of contemporary market strategy techniques in industrial companies. Emphasis is placed on the case approach where students are provided an opportunity to develop strategies in response to given market opportunities and competitive behavior.

MKT 420 three credits
International Marketing
Prerequisites: MKT 311 and senior standing

A systematic treatment of marketing on a global scale. Emphasis is placed on the study of the dimensions of foreign market environments, marketing across national boundaries and the management of marketing programs simultaneously in two or more national environments.

MKT 421 three credits
Advertising
Prerequisites: MKT 311, 331 and senior standing

Principal form and applications of advertising alternatives as a part of overall market strategy planning. Considerable emphasis is placed on applied problems which allow for student planning of advertising campaigns.

MKT 425 three credits
Product Development
Prerequisite: MKT 311

The decision steps of the product development process: innovation strategy, opportunity identification, designing new products, testing and improving products, product introduction and profit management, and implementing the new product development process.

MKT 431 three credits
Consumer Behavior
Prerequisites: MKT 311 and senior standing

A study of consumer decision processes as a series of activities related to the purchase and consumption of goods. Emphasis is given to contemporary thought on the consumer problem-solving process, namely problem recognition, search, evaluation, commitment and post-purchase behavior.

MKT 432 three credits
Sales Management
Prerequisites: MKT 311 and senior standing

Sales programs are formulated and then implemented. This course deals with understanding the importance of these major responsibilities in an age of accelerating product complexity.

MKT 441 three credits
Marketing Management
Prerequisites: MKT 311 and senior standing

This course is based on the management point of view, being decision-oriented and analytical. It sets forth a definite way of surveying current developments in marketing practice, with the advantage of allowing the student freedom, via the case approach, in his or her choice of executive action.

MKT 442 three credits
Marketing Research
Prerequisites: MKT 311, MTH 231 and senior standing

An examination of the market research process as used in approaching contemporary marketing problems. Emphasis is placed on the current status of research techniques and their application.

MKT 443 three credits
Physical Distribution
Prerequisites: MKT 311 and senior standing

An examination of the management of marketing channel systems and subsystems, i.e., transportation, warehousing, inventory control, material handling, packaging, and location analysis. Contemporary thought on research techniques as applied to channel operations is reviewed.

MKT 446 three credits
Social Issues in Marketing
Prerequisites: MKT 311 and senior standing

An examination and appraisal of contemporary thought on the extent to which marketing activities influence the ethical and social values of society.

MKT 495
Independent Study

MKT 496
Directed Study

MKT 900
Contract Learning

Textile Sciences

The textile industry in the United States depends upon the quality of the technical and managerial leadership attracted to the industry. The technological, chemical, and marketing advances of the industry in recent years have opened the door to many career opportunities.

Textiles also provide a unique opportunity for those who seek a lucrative profession. Today's modern textile industry is remarkably diversified, comprising a world where one can develop individual talent and specialize in aspects of manufacturing, chemistry, marketing, management, styling, and design.

Textiles have their application in every conceivable field of modern day living from the products we wear, to industry, the environment, medicine, and explorations in space and the oceans.

Government and industry continue to have tremendous need for those who are educated in the textile sciences. The opportunities for the graduating student present a challenging, exciting, and very rewarding future. More than ever, the industry relies on well-educated textile graduates to continue its manufacturing excellence, capabilities in developing innovative new products, and competitiveness in a high-tech, global market. The curriculum at UMass Dartmouth aims to educate its students to meet these challenges and contribute to the industry's future.

Those interested in textile design may also be interested in the Textile Design/ Fiber Arts major, which is offered through the College of Visual and Performing Arts.

Effective with the freshman class of 1993 and beyond, students are experiencing a substantial change in the textile programs leading to the Bachelor of Science degree. Manufacturing Management: Fibers and Textiles, with a science option, represents a new textiles major with emphasis on manufacturing and business management. The Textile Chemistry major has been revised, as well.

Two graduate programs, one leading to the Master of Science Degree in Textile Technology and the other in Textile Chemistry, are offered by the Department of Textile Sciences.

Textile programs qualify under the New England Regional Student Program to allow non-resident students from the other New England states to pay a reduced non-resident tuition.

The Textile Sciences Building has approximately 21,000 square feet of laboratory space devoted to research and education, with equipment for the processing of yarn from the raw material and the conversion of these yarns into various textile structures from wovens and knits to composites and specialty products.

Equipment is also available for dyeing small lots of fibers, yarns, and fabrics both atmospherically and under pressure. A variety of chemical finishes can be applied to fabrics to produce various functional properties. Students gain experience with most wet finishing operations and evaluating performance properties during each processing stage.

Faculty and Fields of Interest

Yong Ku Kim fiber physics, composites, computer applications, materials

Kenneth Langley microscopy, statistics, yarn pressing, natural fibers

Armand F. Lewis dyeing, material sciences, polymer chemistry, composites, environmental sciences

Ronald S. Perry textile, dye, chemistry, polymer

Steven B. Warner (chairperson) fiber, polymer, material science, nonwovens, composites, microscopy, thermal analysis

Alton R. Wilson design, nonwovens, testing, weaving

General Distribution Requirements	Courses Which Satisfy the Requirements of Humanities and Social Sciences	Department Policy Statements
All students in the Department of Textile Sciences are required to take a minimum of 9 credits in the humanities and 9 credits in the social sciences. For majors in Manufacturing Management: Fibers and Textiles, ENL 265 Business Communications counts as a humanities course and ECO 231, 232 Economics I, II count as social science courses.	The following limitations are imposed in selecting courses to fulfill the humanities/social sciences distribution requirement. Humanities Electives: all courses in the departments of English, Foreign Language (except MLG 324), and Philosophy; non-studio courses in the College of Visual and Performing Arts with prior approval of advisor. Studio or performance courses do not fulfill this requirement. Social Science Electives: all courses in the departments of Economics, Political Science, Sociology/Anthropology, and Psychology. Courses offered by the department of History will satisfy either the humanities or the social sciences requirements.	1. Upper-division students with at least a 2.5 grade point average may, upon approval of the department chairperson, earn up to 3 credits in Contract Learning, which may be applied to fulfill a free or a textile elective. 2. Students must consult with their academic advisor prior to registering for any classes. Transfer students should be aware of possible scheduling problems due to the sequential nature of the Department's curricula, that may cause a delay in meeting graduation requirements. Transfer students are therefore especially encouraged to meet with their academic advisor early in order to satisfy prior-year requirements as soon as possible. In any case, final responsibility for keeping pace with the curriculum and taking required courses in sequence rests with each student.

Manufacturing Management: Fibers and Textiles
BS Degree
(Freshman Class of 1993 and beyond)

This program of study offers a unique blend of courses in the textile sciences, manufacturing, and management. The program also enhances the student's knowledge of timely environmental issues and the linking of science and management principles to address the technological objectives of industry. This innovative program is the result of extensive consultation with industry representatives and is designed to prepare students for a broad selection of careers.

Requirements: General Option		Semester Credits First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Math I, II	3	3
BIS 101	The Business Organization	3	
CHM 130	Chemistry and the Environment	3	
MMT 110	Environmental Science and Business		3
	Humanities/Social Science Electives	3	3
	Free Elective		3
		15	**15**
Second Year			
ACT 211, 212	Accounting I, II	3	3
MMT 201	Fiber Materials		3
ECO 231, 232	Economics I, II	3	3
MTH 231	Statistics I	3	
BIS 315	Information Systems		3
ENL 265	Business Communications		3
	Humanities/Social Science Elective	3	
	Free Elective	3	
		15	**15**
Third Year			
MMT 300	Fabric Design and Structure	3	
MMT 301, 302	Textile Manufacturing I, II	3	3
MGT 333	Management Science I	3	
FIN 312	Business Finance		3
MKT 311	Principles of Marketing		3
MGT 311	Organizational Behavior		3
MMT 310	Statistical Quality Control	3	
MMT 311	Process Optimization		3
	Free Elective	3	
		15	**15**
Fourth Year			
MMT 401	Textile Manufacturing III	3	
MMT 402	Advanced Materials and Composites		3
MMT 303, 304	Dyeing, Printing, and Finishing I, II	3	3
MMT 305	Textile Testing		3
MGT 444	Production and Operations Management	3	
MGT 445	Issues in Productivity & Quality Improvement		3
MMT 410	Manufacturing Facilities Design	3	
MMT 411	Managing Technology		3
	Textile Elective (Research Experience)	3	
		15	**15**
	Total Credits:		**120**

Science Option
(Freshman Class of '93 and beyond)

This option emphasizes science and engineering principles and how these interact with processing and high-performance textile structures, for students who are more inclined towards careers in product development, industrial engineering, or research, rather than in management.

New freshman students will be considered for this option during an initial advising session before the beginning of their first semester. Admissions will look for a secondary school background in mathematics and science similar to that expected for admission to study in biology, engineering technology, medical laboratory science, and nursing.

Requirements		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 161, 162	Introduction to Applied Chemistry I, II	1	1
MTH 111, 112	Analytic Geometry and Calculus I, II	4	4
BIS 101	The Business Organization	3	
	Humanities/Social Science Electives	3	3
	Free Elective		3
		17	**17**
Second Year			
MTH 231	Statistics I	3	
MMT 201	Fiber Materials		3
MMT 301, 302	Textile Manufacturing I, II	3	3
ENL 265	Technical Communication		3
PHY 107	Basic Physics I	3	
PHY 103	General Physics Laboratory I	1	
EGR 231	Materials Science	3	
EGR 221	Materials Science Laboratory	1/2	
	Management Elective		3
	Humanities/Social Science Electives	3	3
		16 1/2	**15**
Third Year			
MMT 310	Statistical Quality Control	3	
MMT 401	Textile Manufacturing III	3	
MMT 404, 405	Processing Dynamics I, II	3	3
MMT 303, 304	Dyeing, Printing, and Finishing I, II	3	3
MMT 305	Textile Testing		3
MMT 300	Fabric Design and Structure	3	
MMT 402	Advanced Materials and Composites		3
	Humanities/Social Science Elective		3
		15	**15**
Fourth Year			
MMT 410	Manufacturing Facilities Design	3	
MMT 463	Research Experience		3
MMT 403	Mechanics of Textile Structures	3	
MMT 411	Managing Technology		3
MMT 406	Computer Applications in Textiles		3
MMT 407	Fiber Reinforced Polymeric Materials	3	
	Free Elective	3	
	Management Electives	3	3
		15	**12**
		Total Credits:	**122 1/2**

MMT 105 three credits
Contemporary Issues in Textile Science

A case study of current products in the textile industry such as windsurfers and medical textiles. Examples of significant technical, legal, economic, and environmental matters will be addressed.

MMT 110 three credits
Environmental Science and Business

The physical sciences and technologies required of business persons to intelligently deal with their responsibility of protecting the environment. Fundamental scientific principles are discussed in the context of the geology of groundwater, soil contamination and its remediation, use/safe handling and disposal of hazardous industrial chemicals/wastes and industrial air pollution and its control. OSHA-regulated issues such as toxic materials use and in-plant noise pollution are also discussed.

MMT 201 three credits
Fiber Materials

The molecular structures and morphologies of fibers. A foundation is provided for understanding the physical, chemical and mechanical properties and behavior of fibrous structures. Production processes and applications are also examined.

MMT 300 three credits
Fabric Design and Structure
Prerequisite: upper-division standing

A study of the interaction of basic designs and processing dynamics on the aesthetic, physical and functional properties of fabric structures.

MMT 301 three credits
Textile Manufacturing I
Prerequisite: upper-division standing

An examination of current and emerging systems employed in conversion of fibers into textile yarn structures. The relationships between material/process constraints and product functional quality are analyzed.

MMT 302 three credits
Textile Manufacturing II
Prerequisite: MMT 301

The principles of engineering and manufacture of fibrous structures by the process of knitting. Machine and motion capabilities and applicable mathematics are studied. The analysis and creation of fabric design and patterns are also considered.

MMT 303 three credits
Dyeing, Printing and Finishing I
Prerequisites: MMT 201 and upper-division standing

The principles of dyeing, printing, and finishing of textile materials. The basic characteristics of dyes, chemical structure of dyes and fibers, detergent and scouring, classification of dyes and fibers, color and chemical composition are studied. Dyeing equipment and the specific dyes and procedures used to dye textiles are also examined.

MMT 304 three credits
Dyeing, Printing and Finishing II
Prerequisites: MMT 303 and upper-division standing

The principles of printing textile materials with dyes and pigments using the various commercial types of printing equipment. The finishing of textile materials using both chemical and mechanical techniques and the functional and aesthetic properties of fabrics will be discussed. Permanent press, softeners, water repellents, fire-retard-ant and other chemical and mechanical treatments will be reviewed.

MMT 305 three credits
Textile Testing
Prerequisite: spring semester junior standing

Determination of raw material, and manufactured textile product conformance to specifications, and process/product evaluation by physical, chemical and microscopic methods. Standard test methods of industrial laboratories are employed. Laboratory test reports are generated by students from the data collection and analysis.

MMT 310 three credits
Statistical Quality Control
Prerequisite: MTH 231

The vision of never-ending improvement in quality. Statistical quality control charts are developed for implementing and maintaining economic control of processes. Diagnostic techniques for determining faults are explored.

MMT 311 three credits
Process Optimization
Prerequisite: MMT 301

The process of moving from the control stage to continuous improvement. Using computer workshops and the experimental methods developed by Taguchi and Box, opportunities are identified for finding and sustaining breakthroughs in improved quality.

MMT 312 three credits
Fabric Design and Structure II
Prerequisite: MMT 300 or permission of instructor

Advanced woven fabric design and structural analysis pertaining to compound fabric structures involving extra warp and/or weft systems, layered fabrics, and leno constructed fabrics. The student is expected to understand and develop commercially viable complex fabric. All students will learn how to apply computer design software for proper woven structure layout and development.

MMT 350 three credits
Environmental Science and Industry Compliance

A study of environmental science, technology, and compliance issues relevant to modern industrial manufacturing practice. The applied science of environmental pollution remediation technology is reviewed in the context of existing laws and regulations. Issues of importance to the textile, chemical product, and related manufacturing industries will be emphasized.

MMT 401 three credits
Textile Manufacturing III
Prerequisites: MMT 301 and upper-division standing

The sequential processes employed in the conversion of textile yarns into woven fabric. The course will focus on the interaction of processing conditions, both from traditional and advanced technologies, on woven fabric quality. Consideration is also given to dedicated information systems.

MMT 402 three credits
Advanced Materials and Composites
Prerequisites: MMT 302, 401, and upper-division standing

Processes used for producing functionally-advanced fibrous materials: non-woven fabrics bonded by mechanical, chemical or thermal techniques; spunbonded, spunlaced and meltblown systems. Braided and knotted structures, fabric coating systems, assemblage of fabrics by stitching, chemical and high radio frequency bonding, and advanced composite materials are considered.

MMT 403 three credits
Mechanics of Textile Structures
Prerequisite: senior standing in science option

Study of the basic mechanics of fibrous assemblies. Topics included are geometry and mechanical behavior of twisted, woven, knit, and non-conventional structures under various stress conditions, and end use application.

MMT 404, 405 three credits
Processing Dynamics I, II
Prerequisite: upper-division standing in science option

Theoretical analysis of the dynamics and machine-fiber assembly interaction in textile fabrication processes. The interrelations between mechanics of production and mechanical properties of yarns, fabrics, and other fiber assemblies are studied. Unit operations required to process fibers to the finished products are considered.

MMT 406 three credits
Computer Applications in Textiles
Prerequisite: senior standing in science option

A survey of computer applications and computer integrated manufacturing (CIM) systems in textiles. The course covers automatic process control, quality monitoring, and manufacturing data acquisition supported by microprocessors and personal computers. Course involves extensive hands-on assignments using MS-DOS, Spreadsheet (LOTUS 1-2-3), word processing, business graphics, databases, and BASIC programming software.

MMT 407 three credits
Fiber Reinforced Polymeric Materials
Prerequisite: senior standing in science option

An introduction to advanced composite materials employing fiber reinforcement. Also studied are resins for polymeric matrices, reinforcing fibers, and properties of the resulting structures. Manufacturing techniques and testing of composite materials are examined.

MMT 408 three credits
Jaquard Fabrication
Prerequisites: MMT 300, 312, or permission of instructor

The execution of complex woven structures for the high end apparel and home furnishings fabric markets. Artistic and technical skills are combined to produce jacquard woven fabrics which are aesthetically and functionally appealing. Color, yarn selection and design are manipulated and organized on a state-of-the art CAD system.

MMT 410 three credits
Manufacturing Facilities Design
Prerequisite: senior standing

A study of the design of a new manufacturing plant. General consideration is given to plant design and layout installation, plant service functions, and engineering economy related to plant engineering. New manufacturing methods and processes in industry are surveyed. Computer-aided design and manufacturing (CAD/CAM) concepts and practices are considered in developing layouts of theoretical process- and/or product-oriented plants. Service facilities design is also considered.

MMT 411 three credits
Managing Technology
Prerequisite: senior standing

Understanding the impact of technology on manufacturing and society.
The course will analyze the effects of technology on society and various business functions, such as product design, manufacturing processes, marketing strategies, and research and development. Topics will include technical innovation, entrepreneurship, and patent protection. Ethical issues related to technology, including product liability, industrial espionage, and the environment, will be discussed.

MMT 463 three credits
Research Experience

Research techniques and experimental investigation into a timely topic in the textiles sciences field.

MMT 526 three credits
Textile Manufacturing Processes
Prerequisite: Graduate standing

The conversion of fibers and yarns into fabric structures by weaving and nonwoven processes. Also studied are the interaction of material, design and processing conditions on the quality of fabric and fabric structures as they relate to dyeing and finishing applications.

Textile Chemistry Major
BS degree

The Textile Chemistry program offers students a rare opportunity to prepare for careers in the application of chemistry to the coloration and alteration of the aesthetic and functional properties of textile structures. Students receive a thorough understanding of chemistry in addition to specialized instruction in the chemistry of fibers, dyes, finishes, and the applicable technology of manufacturing.

The program has a substantial revision, applicable to students entering in 1993 and beyond.

Requirements — Semester Credits

(Freshman Class of '93 and beyond)

		First	Second
First Year			
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 165, 166	Introduction to Experimentation I, II	2	2
CHM 172	Introduction to Computer Programming for Chemists		1
MTH 111, 112	Analytic Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities/Social Science Elective	3	
MMT 110	Environmental Science and Business		3
		15	**16**
Second Year			
CHM 251, 252	Organic Chemistry I, II	3	3
CHM 265, 266	Organic Chemistry Laboratory I, II	2	2
MTH 211	Analytic Geometry and Calculus III	4	
MTH 212	Differential Equations		3
PHY 113, 114	Physics, I, II	4	4
MMT 201	Fiber Materials		3
	Humanities/Social Science Elective	3	
		16	**15**
Third Year			
MMT 300	Fabric Design and Structure	3	
MMT 303, 304	Dyeing, Printing, and Finish I, II	3	3
CHM 305	Modern Methods of Chemical Analysis	3	
CHM 307	Procedures of Chemical Analysis	2	
CHM 315, 316	Physical Chemistry I, II	4	4
MMT 406	Computer Applications in Textiles		3
	Humanities/Social Science Elective		3
	Free Elective		3
		15	**16**
Fourth Year			
TEC 333	Color Science	3	
MMT 305	Textile Testing		3
TEC 420	Advanced Topics in Dyeing, Printing, and Finishing	3	
MMT 411	Managing Technology		3
TEC 410	Polymer Chemistry	3	
TEC 463, 464	Senior Thesis	3	3
	Humanities/Social Science Elective	3	6
		15	**15**
	Total Credits:		**123**

Requirements Semester Credits

(Through Freshman Class of 1992)

		First	Second
First Year			
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 165, 166	Introduction to Experimentation I, II	2	2
MTH 111, 112	Analytic Geometry and Calculus I, II	4	4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Humanities/Social Science Electives	3	3
CHM 172	Introduction to Computer Programming for Chemists		1
		15	**16**
Second Year			
CHM 251, 252	Organic Chemistry I, II	3	3
CHM 265, 266	Organic Chemistry Laboratory I, II	2	2
MTH 211	Analytic Geometry and Calculus, III	4	
MTH 212	Differential Equations		3
PHY 113, 114	Physics, I, II	4	4
CHM 272	Descriptive Inorganic Chemistry		3
TEC 302	Dyeing I		3
	Literature Elective	3	
		16	**18**
Third Year			
CHM 305	Modern Methods of Chemical Analysis	3	
CHM 307	Procedures of Chemical Analysis	2	
CHM 315, 316	Physical Chemistry I, II	4	4
CHM 422*	Computers/Math Methods		3
	Literature Elective	3	
	Unspecified Textile Electives	3	3
	Humanities/Social Science Elective		3
TEC 421	Chemical Technology of Finishing	3	
		18	**13**

*CIS 261 may be substituted.

Fourth Year			
TEC 410	Polymer Chemistry	3	
TEC 401	Dyeing II	3	
TET 462	Microscopy	3	
TEC 411	Textile Printing	3	
	Humanities/Social Science Elective		3
TET 431	Physical Testing		3
	Textile Elective		6
TEC 462	Synthetic Fibers	3	
		15	**12**
	Total Credits:		**123**

TEC 101 three credits
The Science and Technology of Human Hair

An introduction to the science and technology of human hair and hair-care products. The biology of hair loss, hair treatment, history of hair treatments and fashions, differences between scalp and body hair and the relationship between hair and physical and psychological well-being are examined.

TEC 302 three credits
Dyeing I

A study of the various classes of dyestuff used to color the textile fibers, their advantages and limitations, and application methods. A brief review of the machinery used to carry out dyeing processes.

TEC 303 three credits
The Art of Dyeing with Natural Dyes

The natural dyes used by throughout history are discussed. Methods relating to the extraction and preparation of the dyes from woods, bark and insects are studied. Laboratory work consists of the preparation of the dye-baths and the actual application of the dyes to fabrics. Logwood, cochineal, madder, fustic, indigo, quercitron, osage orange and hypernic are some of the dyes utilized. Can only be used as a Free Elective by students in the Textile Sciences Department.

TEC 325 three credits
Textile Chemistry I
Prerequisites: CHM 101, 102

Introductory course in the chemistry of textile fibers, polymers, dyestuffs, surfactants, bleaching, and other chemicals used in the textile industry.

TEC 326 three credits
Textile Chemistry II

A continuation of TEC 325. An introduction to the fundamental chemistry and principles of dyeing, printing and finishing. All phases of textile wet processing will be covered in order to provide a basic understanding of these various phases of textiles.

TEC 333 three credits
Color Science
Prerequisite: Senior standing

The study of how color affects our everyday life and the formation and measurement of color is described. Laboratory demonstrations and experiments are included in the course.

TEC 401 three credits
Dyeing II
Prerequisite: TEC 302

The colloid science, surface and physical chemistry of fiber/fabric dyeing.
An introduction to color physics including dye formulation prediction and color matching by computer methods. Special topics on large-scale dyeing methods and recent advances in dyeing technology.

TEC 402 three credits
Advanced Dyeing

Continuation of TEC 401.

TEC 410 three credits
Polymer Chemistry
Prerequisite: Senior standing

The physical and organic chemistry of polymers, kinetics, molecular weight determination, polymerization mechanisms, and stereochemistry.

TEC 411 three credits
Textile Printing
Prerequisites: TEC 302, 325

Methods of printing (roller, screen dyes, pigments, transfer) and the preparation of printing pastes. Direct, discharge and resist printing methods are included.

TEC 420 three credits
Advanced Topics in Dyeing, Printing, and Finishing
Prerequisite: Senior standing

An in-depth study of dyeing, printing, and finishing, including color measurement, various types of equipment, and process controls used in industry. Students will take field trips to various industrial sites.

TEC 421, 422 three credits
Chemical Technology of Finishing I, II

Chemical finishes which modify fabric appearance, feel, and serviceability (to shrinkage, soiling, mildew, moths, wrinkling, fire, water, static electricity, etc.) are discussed, along with the means used to apply them. The production of special effects (permanent press, crepe, moire, etc.) is also studied.

TEC 431 three credits
Industrial Chemical Analysis I

Chemical analysis and testing of products associated with the textile industry: fibers, dyes, finishes, surfactants and auxiliary products, plus acids, alkalis, oxidizing and reducing agents. The various methods of analysis are critically reviewed.

TEC 442 three credits
Chemistry of Fibers
Prerequisites: CHM 251, 252, 265, 266, TEC 325

The chemistry of natural and synthetic fibers. Studies are made concerning the relationship between the chemical structure and physical properties of fibers.

Graduate Courses in Textile Chemistry

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

TEC 452 three credits
Textile Microbiology
Prerequisite: TEC 421

Fundamental techniques of microbiology. The preparation of culture media, staining and identification, and sterilization techniques are included. The application and evaluation of bactericidal and fungicidal finishes to textile materials are studied in detail.

TEC 462 three credits
Synthetic Fibers

This course is designed to familiarize the student with the physical and chemical properties of man-made fibers. Coverage includes a survey of the various manufacturing processes and the utilization of these newer synthetics in the production of fabrics.

TEC 463, 464 three credits
Senior Thesis
Prerequisite: Senior standing

Students will prepare a thesis proposal and do laboratory research in one of the following areas: polymer chemistry, fibers, dyeing, printing and finishing. Findings will be presented at the end of the second semester.

TEC 485, 486 three or six credits
Introduction to Research
Prerequisite: Senior standing

Textile Chemistry students accepted for research study by a faculty research advisor will be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his or her proficiency in the analysis, solution and presentation of his or her investigating work.

TEC 495
Independent Study

TEC 496
Directed Study

TEC 900
Contract Learning

TEC 500 eight credits
Thesis
Prerequisite: Graduate standing

Written presentation of an original research topic in Textile Chemistry, which demonstrates analysis, ability, and proficiency in the solution. The thesis shall be conducted under the supervision of a faculty advisor. An oral examination in defense of the thesis is required.

TEC 501 four credits
Chemistry of Dyestuffs
Prerequisite: Graduate standing

This course deals with the chemistry and technology of dyestuffs. The raw materials, intermediates and finished dyestuffs are studied in detail. The effect of the constitution on color and fastness properties is emphasized. Theoretical as well as practical and economic points of view are presented. The preparation of typical intermediates and dyestuffs is carried out in the laboratory.

TEC 502 three credits
Physical Chemistry of Dyeing
Prerequisite: Graduate standing

This is a lecture course concerned with the physiochemical theories of the application of dyestuffs to textile and related materials, including the thermodynamics and kinetic principles involved.

TEC 503 three credits
Physical Chemistry of Surface Active Agents
Prerequisite: Graduate standing

This lecture course is concerned with the physiochemical principles involved in surface-active agents. The chemical nature of the agents is studied and related to their properties. The technical uses are evaluated on this basis.

TEC 506 three credits
Survey of Current Textiles
Prerequisite: Graduate standing

Studies in this course include a survey of the fundamental reference works and literature of Textile Chemistry. Timely reports are required concerning recent advances in the manufacture, modification, dyeing and finishing of synthetics and blends.

TEC 508 three credits
Advanced Textile Printing
Prerequisite: Graduate standing

The more complex styles of printing, discharge and resist, are covered in detail. The preparation of white and colored print paste for all classes of dyed backgrounds is investigated. Attention is given in dyeing ground shades for discharge print. Special effects such as Plisse, Burnout and Vigoreaux styles are considered.

TEC 509 three credits
Chemical Technology of Finishing
Prerequisite: Graduate standing

This course is more comprehensive than that given in the undergraduate course. Greater detail is provided concerning the mechanisms used in the application of specialized finishes and the chemical reactions involved.

TEC 510 three credits
Polymer Chemistry
Prerequisite: Graduate standing

The physical and organic chemistry of monomers and polymers and their preparation, including a consideration of bonding forces, spectroscopic methods of structure determination, structure and property correlations, fractionation, thermodynamics, and methods of molecular weight determination for polymers in solution.

TEC 521 three credits
Textile Chemistry I
Prerequisite: Graduate standing

The mechanisms of dyeing, printing, and finishing. The structures of dyes and textile fibers, detergency and scouring, and dyeing equipment and procedures.

TEC 522 three credits
Textile Chemistry II
Prerequisite: Graduate standing

The principles involved in the application by printing of dyes and pigments on textile materials. Topics include textile finishing and functional requirements of permanent press, softness, water repellency, and fire retardant.

TEC 523 three credits
Textile Laboratory Practice I
Prerequisite: Graduate standing

Practice and experimentation in the dyeing of fibers with various dyes, wash and lighfastness properties, finishing.

TEC 524 one-half credit
Textile Laboratory Practice II
Prerequisite: Graduate standing

Includes fiber microscopy, textile printing exercises, experiments in color science including measurement and assessment.

TEC 525 three credits
Fiber Materials
Prerequisite: Graduate standing

The production and structure of fibers, including molecular arrangements and morphologies. The conversion of fibers into textile yarn structures and the relationship between physical and chemical properties of fibers and processing dynamics on the yarn properties are also studied.

Textile Technology Major
BS degree
(Through Freshman Class of 1992)

Core Program

The Textile Technology program is designed to provide a comprehensive study in the science and technology of fibrous materials, the conversion of these into related structures as well as their chemical and physical performance.

Textile Technology students must declare an area of concentration by the spring registration period of the sophomore year. An earlier declaration is preferable. Requests for changes in their declared concentration must be submitted for approval in writing to the department chairperson.

All Textile Technology students are required to complete a core program of studies.

The Core Program is enhanced by affording students the opportunity to pursue their personal and professional goals by the selection of an option or an approved selection of courses which offer a special emphasis.

*Transfer students, with the consent of the advisor, may need to take only one semester of Textile Orientation. An additional textile elective will replace the reduced Textile Orientation requirement.

Core Program

		Credits
Textile Courses		
TET 103, 104	Textile Orientation*	6
TEC 325	Textile Chemistry I	3
TET 211, 212	Fabric Technology I, II	6
TET 221	Fabric Design I	3
TEC 462	Synthetic Fibers	3
TET 201, 202	Yarn Technology I, II	6
TET 431	Physical Testing	3
TEC 302	Dyeing I	3
TEC 421	Chemical Technology of Finishing I	3
TET 473	Non-Woven Fabric Structure	3
TET 231	Knit Technology I	3
TET 411	Statistical Methods and Quality Control	3
		45
Non-Textile Courses		
ENL 101, 102	Critical Writing and Reading I, II	6
CHM 101, 102	General Chemistry I, II	6
CHM 103, 104	General Chemistry Lab I, II	2
PHY 101, 102	Introduction to Physics I, II	6
PHY 103, 104	General Physics Laboratory	2
MTH 101, 102	Elements of College Mathematics I, II	6
BIS 101*	The Business Organization	3
	Humanities/Social Science Elective	18
		49
	Total Credits:	**94**

*CIS 161 or CIS 201 may be substituted. Students pursuing selection courses in engineering will take higher levels of math, computers, and physics.

Structural Sciences Option
(Through Freshman Class of 1992)

This option provides depth and breadth in the student's knowledge in the science and technology of fibers, yarns, and fabrics.

Requirements		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Mathematics I, II	3	3
CHM 101, 102	General Chemistry	3	3
CHM 103, 104	General Chemistry Laboratory	1	1
TET 103, 104	Textile Orientation	3	3
	Humanities/Social Science Electives	3	3
		16	**16**
Second Year			
TEC 325	Textile Chemistry I	3	
TET 211, 212	Fabric Technology I, II	3	3
ENL 266	Technical Communications		3
PHY 101, 102	Introduction to Physics	3	3
PHY 103, 104	General Physics Laboratory	1	1
TEC 302	Dyeing I		3
BIS 101	The Business Organization	3	
	Humanities/Social Science Electives	3	3
		16	**16**
Third Year			
TET 321	Fabric Structure		3
TET 231, 232	Knit Technology I, II	3	3
TET 201, 202	Yarn Technology I, II	3	3
TET 221, 222	Fabric Design I, II	3	3
TET 473	Non-woven Fabric Technology		3
TEC 462	Synthetic Fibers	3	
	Electives/distribution requirements	6	3
		18	**18**
Fourth Year			
TEC 421	Chemical Technology of Finishing I	3	
TET 301	Yarn Technology III	3	
TET 411, 412	Statistical Methods and Quality Control	3	3
TET 481	Plant Engineering		3
TET 431	Physical Testing	3	
	Electives/distribution requirements	3	6
		15	**12**
	Total credits:		**127**

Dyeing and Finishing Option
(Through Freshman Class of 1992)

This option provides a specialized emphasis on the science and technology of color application and the aesthetic and physical alteration of textile products.

Course and Program Selections for Special Emphases

Rather than selecting an option, Textile Technology majors may work out with their advisors a variety of course and program selections that offer special emphases and will complement the major. This allows textile technology students to pursue their personal and professional goals. Especially common are selections that emphasize engineering technology or a multi-disciplinary approach.

A unique opportunity is also offered through the Fashion Buying and Merchandising program, which offers qualified students the opportunity to prepare for careers with retail and wholesale organizations in buying, merchandising, fashion coordination, advertising, publicity, styling, sales or marketing. See your advisor prior to spring registration of the freshman year. For this program, UMass Dartmouth students become "visiting students" at the Fashion Institute of Technology (FIT). It requires approval from both UMass Dartmouth and FIT and leads to an Associate's degree from FIT.

Those Textile Technology majors who wish to pursue a business emphasis with textile career interests in areas such as fashion buying, retailing and sales, merchandising or management, are invited to consider the minor in Business Administration.

Requirements		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 101, 102	Elements of College Mathematics I, II	3	3
CHM 101, 102	General Chemistry	3	3
CHM 103, 104	General Chemistry Laboratory	1	1
TET 103, 104	Textile Orientation	3	3
	Humanities/Social Science Electives	3	3
		16	**16**
Second Year			
TEC 325, 326	Textile Chemistry I, II	3	3
TET 211, 212	Fabric Technology I, II	3	3
ENL 266	Technical Communications		3
PHY 101, 102	Introduction to Physics I, II	3	3
PHY 103, 104	General Physics Laboratory	1	1
TEC 302	Dyeing		3
	Humanities/Social Science Elective	6	
		16	**16**
Third Year			
TET 231	Knit Technology I	3	
BIS 101	The Business Organization		3
TET 201, 202	Yarn Technology I, II	3	3
TET 473	Non-Woven Fabric Technology		3
TEC 462	Synthetic Fibers	3	
TET 221	Fabric Design I	3	
TET 462	Microscopy	3	
	Electives*	3	9
		18	**18**
Fourth Year			
TEC 421	Chemical Technology of Finishing I	3	
TET 360	Computers and Textile Technology	3	
TET 411, 412	Statistical Methods and Quality Control I, II	3	3
TET 481	Plant Engineering		3
TET 431	Physical Testing	3	
TEC 411	Textile Printing		3
TEC 401	Dyeing II	3	
	Textile Elective		3
		15	**12**
	Total credits:		**127**

Textile Technology Courses

Textile Technology elective courses may be selected from any of the Textile Chemistry or Textile Technology courses listed provided the prerequisites, if any, have been met. Courses specified for non-textile majors may not be taken.

TET 201 three credits
Yarn Technology
Prerequisites: MMT 301

The theoretical and technological concepts of processing on the cotton system, with emphasis on the initial operations during the first semester. Similar concepts employed during the remaining operations of yarn processing are also emphasized. Historical basis for processing changes and modernization is also considered.

TET 301 three credits
Yarn Technology
Prerequisites: MMT 301

Discussions of the stress-strain properties of fibers and their relation to processing and product characteristics. Blends, blend systems, and the processing of blend and 100% synthetic staple material into yarns is also emphasized. Other selected topics will also be considered.

TET 319 three credits
Synthetic Fiber Processes

Synthesis of polymeric materials and their extrusion into films and fibers. Manufacture of the major synthetic fibers, namely polyamide, polyester, acrylics and polypropylene, is discussed in depth. Newer fibers such as those derived from aromatic polyamides are also covered. This course also deals with the relative merits of the various fibers in terms of economics and performance.

TET 321 three credits
Fabric Structure
Prerequisites: MMT 301, 312

A continuation of MMT 301. More complex fabric constructions and patterns are pursued including the technology of reproduction and creation of fabrics in the areas of multiple yarn system and three-dimensional characteristics and properties. Associated yarn and fabric mathematics are also included.

TET 322 three credits
Fabric Structure
Prerequisites: MMT 300, 301, 312

Construction of fabrics and theory of fabric properties influenced by dyeing and finishing techniques. Emphasis is placed on the analysis of fabric defects and defect evaluation programs currently applied in the industry.

TET 331 three credits
Textile Technology

This is a course for Textile Design students covering the theory of procedures employed in the processing of raw materials into yarns and fabrics, including natural and manufactured types of fibers.

TET 352 three credits
Seminar
Prerequisite: permission of instructor

Students will write and present papers on aspects of a subject chosen for the semester.

TET 360 three credits
Computers and Textile Technology

Computer applications and computer-aided manufacturing in textile technology are discussed in terms of hardware and software configurations. Intensive programming skills with higher-level languages are emphasized for solving practical problems encountered in industrial environments. Data acquisition techniques and process controls are introduced and typical quality monitoring and control systems in the textile industry are considered.

TET 405 three credits
Textile Merchandising and Marketing

Case histories and general discussions of the following subjects: the marketing of textile fibers, yarns, cloth; the influence of style and fashions on textile industry products; also price policies and other problems common to the textile industry.

TET 421 three credits
Design and Structure
Prerequisites: MMT 300, 312

Design principles and techniques applied to the reproduction and creation of Jacquard-type fabrics. This includes the development of the pattern sketch and painted design and the transfer of same for technical application in fabric formation. A study of novelty and textured yarns is included.

TET 431 three credits
Physical Testing
Prerequisite: MMT 305

Standard physical examinations of fibers, yarn, and fabrics for research and quality control purposes. Physical testing concepts and testing equipment will be discussed and operated in the coordinated laboratory to examine more important and common testing methods for quality acceptance of textile materials.

TET 462 three credits
Microscopy

Optical microscopy in fiber identification and structure, composition of blends, physical, chemical, and biological condition of fibers and yarns. Students are taught the application of micrometers for length, diameter, and area measurements which is a prerequisite for recording of data by photomicrography.

TET 470 three credits
Advanced Knitting Technology
Prerequisite: MMT 302

A study of knit fabrics made on Raschel and Warp knitting machines, together with the creation of new designs and the formation of many types of webbing using different yarns. Charts are made of the sample to indicate the variances in types of yarns—fabric reactions from fine gauge knit lace to course webbings. Finishing requirements of these particular fabrics are studied.

Graduate Courses in Textile Technology

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

TET 482 three credits
Fabric Research Development and Design

This course correlates properties of textile materials, engineering principles in textile processing, and the design of fabric structures with the desired properties for a particular functional use. Also studied are stress-strain, dimensional stability, and other characteristics pertaining to the behavior of the finished product.

TET 485 three or six credits
Introduction to Research
Prerequisite: Senior standing

Students accepted for study by a faculty research advisor shall be assigned a topic for investigation. It is the aim of this course to introduce the student to research and develop his or her proficiency in the solution, analysis, and presentation of his or her investigating work. A maximum of 6 credits can be obtained.

TET 486 three or six credits
Introduction to Research

A continuation of TET 485.

TET 492 three credits
Textile Cost Accounting

Principles and problems basic to textile costing; basic cost concepts; cost problems; materials, labor and manufacturing costs; textile fiber and supplies purchasing; spinning mill costs; weaving mill costs; finishing mill cost problems, textile marketing costs; financial statements.

TET 495
Independent Study

TET 496
Directed Study

TET 900
Contract Learning

TET 500 eight credits
Thesis
Prerequisite: graduate standing

Written presentation of an original research topic in Textile Technology, which demonstrates analysis, ability, and proficiency in the solution. The thesis shall be conducted under the supervision of a faculty advisor. An oral examination in defense of the thesis is required.

TET 501 three credits
Yarn Technology
Prerequisite: graduate standing

This course is concerned with the aspects of yarn processing which affect the properties of the product during the various stages of manufacturing. Students will be required to exhaust reference materials as a preliminary to the completion of written reports on subject matter assigned. In an endeavor to familiarize the student with research procedures and the evaluation of results, actual project reports will be studied.

TET 503 one credit
Research Techniques
Prerequisite: graduate standing

A course designed to aid the student in better understanding research approach and techniques. To develop an insight as to the evaluation of research results. A proposal on an original research topic must be submitted and approved.

TET 504 three credits
Graduate Seminar
Prerequisite: graduate standing

Student discussions on selected topics will be carried out under the supervision of a faculty member. Written papers to be submitted on those topics assigned.

TET 506 three credits
Independent Study
Prerequisite: graduate standing

Individual study under the supervision of a faculty member in an area of textiles not otherwise a part of the course offerings. Students shall be held responsible for meeting the requirements of independent study as outlined in an approved proposal.

TET 507 three credits
Textile Microscopy and Photomicrography
Prerequisite: graduate standing

Instruction and problems in this course include the use of the microscope in relation to fiber identification and structure, composition of blends, physical, chemical, and biological condition of yarns and fabrics. Recording of data by photomicrography is included.

TET 508 three credits
Design & Analysis of Experiments
Prerequisites: graduate standing

A study of the statistical methods and systems employed in the design of experiments, the testing of materials, and the evaluation of test data.

TET 511 three credits
Fabric Technology
Prerequisite: graduate standing

This course covers an investigation in advanced styling and the development of methods of textile fabrication. Requirements of modification and the introduction of new procedures are studied pertaining to new design in fabric construction for improved performance and specific uses. Extensive research of reference material is conducted with written reports submitted on assigned related subject matter.

TET 521 three credits
Statistical Methods of Quality Control
Prerequisite: graduate standing

This course consists of a study of methods and systems by the use of statistical analysis in the design of experiments, in the testing of materials and in the evaluation of test data as applied in the interest of improvement and control of quality, as well as studies of processing efficiency.

TET 563 three credits
Fibrous Structure
Prerequisite: MMT 201 or equivalent

The molecular structure and arrangements of molecules in fibers are considered with respect to giving a foundation to the understanding of the physical and mechanical properties and behavior of textile raw materials. The properties are examined from a fundamental viewpoint so that a sound approach to the technological utilization of fibers in textiles can be established. An introduction is made to the interrelation between fiber properties and yarn and fabric geometry in determining the behavior of textiles.

TET 564 three credits
Mechanics of Fibrous Structures
Prerequisite: graduate standing

A study of the basic mechanics of fibrous assemblies such as twisted structures (yarns, rope, braid), woven knitted, and non-woven fabrics. The methods of continuum mechanics and differential geometry to interrelate material properties and end-use properties are considered.

College of Engineering

The College of Engineering offers nationally accredited programs leading to the B.S. degree in four engineering fields. These programs, accredited by the American Board for Engineering and Technology (ABET), build on a foundation of basic sciences, humanities and social sciences, mathematics, and engineering sciences and then provide an experience in design so important in the problem-solving responsibilities expected in the technological professions.

Because the engineering profession must respond to frequent new technological developments, the academic programs are continually revised to keep them up-to-date. In addition, since engineering faculty maintain strong professional contacts in the surrounding business and technology communities, students can often be placed with companies on internship assignments and gain actual work experience.

Our students learn by doing. All programs in the College of Engineering stress real-world engineering applications beginning in the freshman year and ending in the senior year with a capstone design project. Throughout their careers in the College of Engineering, engineering students accrue knowledge and skills that provide a foundation in the engineering methodology. While all engineering disciplines are analytical, and rest on a foundation of math, natural science, and specific engineering studies, the successful engineer must be educated in the arts, humanities, social sciences, and business-related areas. Toward that end, we require our engineering students to take humanities and social science electives, which, when coupled with free electives, provide the broad liberal education required of contemporary engineers entering the marketplace.

Summer Bridge and Engineering Path Admission

The engineering programs are rigorous, requiring strong high school preparation and high motivation. To accommodate students who are interested in engineering but not ready for the rigors of the standard curriculum, the College of Engineering offers three alternate means of entry.

1. Alternative Path students carry a lighter course load than is defined by the standard curriculum, so that the degree requirements are completed in five years instead of four. In the first semester of the freshman year, instead of calculus, Alternative Path students take a pre calculus course and postpone calculus-based physics to the second year.

Students who enter the College of Engineering via the Alternative Path will be able to proceed at their own pace after their first year. The recommended option continues a schedule of 12 to 15 credits each semester and leads to a degree 5 years after admission. A five year schedule is recommended not only for alternative Path students but also for those students who want a reduced course load to provide sufficient time for a part-time job, sports, or other extracurricular activities. Many students who start on the standard 4 year engineering curriculum later find it necessary to extend their program to 4 1/2 or 5 years. For many students it is better to plan on a 5 year schedule from the beginning, as with the Alternative Path.

2. The Summer Bridge program is aimed at students having a deficiency in math or science preparation at the high school level which can be made up during summer preceding the fall semester of the freshman year. Students admitted into the Summer Bridge program can make up the deficiency at a school or college of their choice and also enroll in the Pre-Engineering course during the summer at UMass Dartmouth. Upon successful completion of this program, the applicant may enter an engineering major at the start of the fall semester. Otherwise, the applicant will be offered admission to Liberal Arts Undeclared.

3. The Engineering Path program is intended for those students who have more deficiencies than can be made up during the summer, but are otherwise qualified for the rigors of an engineering program. These students complete a year-long program at UMass Dartmouth as undeclared engineering majors, during which they make up deficiencies. The second year of this program is essentially the freshman year of the specific engineering program of interest, less any required courses completed during the pre-engineering year.

Although the programs of the College of Engineering have common elements, each represents a different career objective, as indicated in the following descriptions of programs. Students undecided about a major within these programs may postpone a decision until the end of the first year of study. Students with questions about career choice are invited to consult with the Dean of the College of Engineering.

Transfer Agreements

The College of Engineering seeks to facilitate the transfer of students from community college, and from four-year institutions that lack the engineering baccalaureate, by means of a variety of transfer and matriculation agreements.

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Course and program articulation matrixes are maintained to facilitate planning and transfer between UMass Dartmouth engineering curricula and the courses and programs at Bristol, Massasoit, and Cape Cod Community Colleges. Transfer applicants from other institutions are assessed individually.

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Students at the University of Massachusetts Boston, Framingham State College, and Worcester State College who complete an identified 2-year curriculum and meet conditions for a standard of performance receive guaranteed admission to identified engineering programs at UMass Dartmouth.

Humanities and Social Science Requirements for Engineering and Engineering Technology Students

The College of Engineering requires that all students complete 15 credits of humanities and social sciences in addition to English 101, 102, and 266. Of these five courses, two must be from a single field in the humanities and two must be from a single field in the social sciences. None of the courses may be taken on a Pass/Fail basis. One of the two humanities courses and one of the two social science courses must be at an advanced level (200 level courses with prerequisites and 300 or 400 level courses are considered advanced level). ECO 231, 232 taken together will satisfy the social science requirement, including advanced level.

Acceptable courses in the humanities include all courses in:

Art History
English (literature courses only)
Foreign Literature and Language
History
Music History and Theory
Philosophy

Acceptable courses in the social sciences include:

Economics (except ECO 280, 333)
History
Political Science
Psychology (except PSY 205, 310)
Sociology and Anthropology

A student may select free electives, as required by the curriculum, without regard to the restrictions imposed above for the humanities or social sciences.

The following courses are taken in common by students in some of the majors in the college.

EGR 221 one half credit
Materials Science Laboratory
3 hours laboratory
Prerequisite: EGR 231 concurrently

Properties of materials studied in a series of experiments. Supplements the course material in EGR 231 Materials Science.

EGR 231 three credits
Materials Science
3 hours lecture
Prerequisite: CHM 152

A fundamental treatment of engineering materials. Properties are discussed on the basis of material structure. Metallic, organic and ceramic materials are compared and applications are presented. Phases and phase relationships in binary systems are introduced. Solid state reactions and modifications of properties through change in micro-structure are studied. Stability of materials in service environments is analyzed on the basis of material structure.

EGR 232 three credits
Engineering Thermodynamics I
3 hours lecture
Pre- or co-requisites: CHM 152, MTH 211

The fundamental concepts and basic principles of classical thermodynamics. The Zeroth, First and Second laws of thermodynamics are formulated with recourse to empirical observations and then expressed in precise mathematical language. These laws are applied to a wide range of engineering problems. The properties of pure substances are described using equations of state and surfaces of state. Reversible processes in gases are analyzed by means of the First and Second laws. A representative sampling of engineering applications is discussed and analyzed.

EGR 241 three credits
Engineering Mechanics I: Statics
3 hours lecture
Prerequisites: PHY 113, MTH 112

The first course in engineering mechanics has two major objectives: first, to introduce the student to the science of engineering mechanics and second to introduce the student to the art of applying science to the solution of engineering problems. The specific vehicle or curriculum to accomplish these objectives will be a study of the statics of rigid bodies.

EGR 242 three credits
Engineering Mechanics II: Dynamics
3 hours lecture
Prerequisites: EGR 241, MTH 211; MTH 212 concurrently

A continuation of the study of mechanics initiated in EGR 241. Work and energy methods are emphasized. Motion in accelerating coordinate systems and dynamics of a system particles lead to the discussion of rigid body dynamics in three dimensions. A number of examples of rigid body motion are discussed. Free and forced vibrations of one degree of freedom, and free vibrations of multi-degree of freedom systems, are studied. The principle of virtual work is introduced and used to briefly discuss stability of equilibrium.

EGR 301 three credits
Applied Engineering Mathematics
3 hours lecture
Prerequisite: MTH 212

Mathematical methods useful to all engineering students. They include: elements of linear algebra, matrices, eigenvalues problems, systems of ordinary differential equations, Fourier series, partial differential equations, probability theory, mathematical statistics, and brief introduction to complex numbers.

Engineering Courses for all UMass Dartmouth Students

The following courses are offered by the College of Engineering as interdisciplinary courses or as courses that may satisfy distribution and science requirements.

EGR 157 three credits
Science of Engineering
2 hours lecture, 1 hour laboratory
Prerequisite: honors requirements (3.2 G.P.A. or by invitation)

The scientific principles underlying the practice of various engineering disciplines. This honors-level course is for non-science and non-engineering majors.

EGR 100 three credits
The Technical Nature of the Human Environment

Three consecutive five-week mini-courses, primarily for non-engineers, designed to develop an understanding of the technical nature of structures such as buildings and bridges, transportation systems, and environmental systems.

EGR 203 three credits
Environmental Geology

A brief outline of earth's development to the present and basic materials of geology—rocks, minerals and geological processes. The course examines how geologic processes and hazards influence human influence human activities, the geologic aspects of pollution and waste disposal problems, etc. Prior exposure to geology or college-level math or science is not necessary.

EGR 411/412 three credits each
Technological Society Year 2000 Analysis/Synthesis

Interdisciplinary study of several technologies (transportation, education, energy, etc.) and of their impact upon the individual and society today and tomorrow. Evaluation of current technological status, its trend, individual valuations of its possible changes. Design of desirable technologies and how to achieve them.

Civil and Environmental Engineering

Civil and environmental engineering—The engineering constructed facilities; of buildings, bridges, tunnels, and dams; of harbors and airports; of waterways, railways, and highways; of water power, irrigation, drainage, and water supply; of wastewater and hazardous waste disposal and environmental health systems. Civil Engineers are the professionals who plan, design, and direct the construction of these facilities.

The civil and environmental engineering program at UMass Dartmouth is specifically designed to prepare the student to enter the profession upon graduation, and also to have the necessary theoretical background to enter graduate school. The program is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

Faculty and Fields of Interest

Neil Fennessey environmental engineering

Thomas Paul Jackivicz environmental engineering

Madhusudan Jhaveri geotechnical engineering, solid mechanics

Sat Dev Khanna (chairperson) hydraulic engineering, water resources

Frederick M. Law structural engineering

Heather J. Miller geotechnical engineering

Walaa S. Mogawer transportation engineering

Sukalyan Sengupta environmental engineering

Civil Engineering Major
BS degree

The academic preparation for a profession which is as varied as Civil Engineering requires considerable breadth as well as depth. The Civil Engineering curriculum at UMass Dartmouth is designed to provide this breadth and depth first by preparing the student with a thorough grounding in mathematics, the basic sciences, and the engineering sciences; next by providing a broad background in the basic Civil Engineering specialities; and finally, by offering the student the opportunity to gain some depth of understanding in two or more of the following specialties—Environmental Engineering, Hydraulic Engineering, Structural Engineering, or Transportation Engineering. Each student's program includes a sequence of technical electives which are a combination of engineering sciences and engineering design which culminate in a meaningful major design experience. To better prepare the student to take his or her place as a citizen as well as a professional, the curriculum is also designed to include a number of courses in the humanities and social sciences.

Requirements

		Semester Credits	
		First	**Second**
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 161, 162	Intro Applied Chemistry Engineers I, II	1	1
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
PHY 113	Classical Physics I		4
CEN 161	Civil Engineering Design Graphics	3	
CEN 252	Ethics and Professionalism		1
		14	**16**
Second Year			
EGR 241, 242	Engineering Mechanics, I, II	3	3
MTH 211, 212	Calculus III, Differential Equations	4	3
CEN 201	Surveying		3
CEN 211	Surveying Laboratory		1
CEN 302	Mechanics of Materials		3
CEN 312	Mechanics of Materials Lab		1/2
	Humanities/Social Science Elective		3
PHY 114	Classical Physics II	4	
CIS 261	Principles of Computer Programming	3	
ENL 266	Technical Communications	3	
		17	**16 1/2**
Third Year			
CEN 303	Fluid Mechanics	3	
CEN 313	Fluid Mechanics Laboratory	1	
CEN 307	Structural Theory	3	
ECE 211	Elements of Electrical Engineering I	3	
	Advanced Math Elective	3	
CEN 304	Sanitary and Environmental Engineering		3
CEN 314	Sanitary and Environmental Engineering Lab		1
CEN 308	Structural Engineering		3
EGR 232	Engineering Thermodynamics		3
	Technical Elective		3
	Humanities/Social Science Elective		3
CEN 309	Introduction to Transportation	3	
CEN 310	Construction Materials Lab	1/2	
		16 1/2	**16**
Fourth Year			
CEN 402	Engineering Economy	3	
CEN 403	Soil Mechanics	3	
CEN 413	Soil Mechanics Laboratory	1	
	Technical Electives	6	9
	Humanities/Social Science Electives	3	6
		16	**15**
	Total Credits:		**127**

Technical Electives

All Civil Engineering degree candidates must complete a minimum of 6 technical electives. Three of these technical electives must be from the Group I electives and 3 must be from the Group II electives listed below:

Group I Electives

CEN 311
Hydraulic Engineering
CEN 321
Structural Analysis
CEN 411
Water Quality Engineering
CEN 421
Matrix Methods of Structural Analysis
CEN 434
Traffic Engineering

Group II Electives

CEN 412
Pollution Control of Wastes
CEN 422
Design of Structural Systems
CEN 423
Design of Foundations and Earth Structures
CEN 431
Highway Engineering
CEN 443
Advanced Hydrology and Hydraulics
CEN 491
Civil Engineering Honors Project

CEN 161 three credits
Civil Engineering Design Graphics
2 hours lecture, 4 hours laboratory

The standard graphical means of communication between the civil engineer and the constructor are introduced. The students' graphic communication skills are developed including the ability to use computer-aided graphic systems.

CEN 201 three credits
Surveying
3 hours lecture

A study of the theory and practice of plane surveying as applied to property, topographic, and engineering surveys, including curves, error theory and earth-work as related to civil engineering projects.

CEN 211 one credit
Surveying Laboratory
3 hours laboratory
Corequisite: CEN 201

Consists of field practice to understand and supplement the CEN 201 course contents.

CEN 252 one credit
Ethics and Professionalism
1 hour lecture

The professional nature of engineering and the code of ethics which governs its practice.

CEN 302 three credits
Mechanics of Materials
3 hours lecture
Prerequisite: EGR 241

The behavior of materials and members under axial load, torsion, flexure, shear and combined loads, including the deflection of beams and buckling of columns. The relationship between stress and strain, principal stresses and strains and yield and fracture criteria are discussed.

CEN 303 three credits
Fluid Mechanics
3 hours lecture
Prerequisite: EGR 242

The mechanics of fluids, fluid properties, fluid statics. Kinematics and dynamics of flow fields are developed. Dimensional analysis, metering, laminar and turbulent flows will also be discussed. Emphasis is placed on energy equations with applications to closed conduit and open channel flow problems. Boundary layer concepts and drag and lift forces on submerged bodies are also considered.

CEN 304 three credits
Sanitary and Environmental Engineering
3 hours lecture
Prerequisites: CEN 303, CHM 152

Introduction to the sanitary engineering field. The environmental problems of urbanization and the natural cycle of water are discussed. Elementary hydrology, physical, chemical and biological principles of the treatment of water and wastewater are covered. Municipal services—water mains, sanitary sewers and storm water drainage, layout and operation of purification and treatment works are studied in detail. In addition, state and federal regulatory standards are introduced and discussed.

CEN 305 three credits
Earth and Marine Geology
3 hours lecture

A study of the processes and mechanisms that act on and within the earth, the agents and forces that cause change and the consequences of that change. The relationship of geological phenomena to the field of Civil Engineering is emphasized. The important Civil Engineering aspects of marine geology are also discussed.

CEN 307 three credits
Structural Theory
3 hours lecture
Prerequisite: CEN 302

The methods of structural analysis and design of reinforced concrete beams, columns, frames, and one-and two-way slabs are formulated and discussed. Emphasis is placed on giving the student an understanding of the general behavior of statically indeterminate structures as well as the specific behavior of reinforced concrete members.

CEN 308 three credits
Structural Engineering
3 hours lecture
Prerequisite: CEN 307

The field of structural engineering, introduced through a study of the methods of structural analysis and design of steel structures based on both the elastic and plastic theories. Emphasis is placed on giving the student an understanding of the general behavior of all structures as well as the specific behavior of structural steel members.

CEN 309 three credits
Introduction to Transportation
3 hours lecture
Prerequisites: PHY 113, CEN 201

Characteristics of transportation in a comprehensive overview. Mobility needs, their measurement and planning utility, are discussed. A human decision model is developed; the physical constraints and calculations on transportation are developed; human, technological and economic criteria for transportation systems are developed, and applied to existing and future transportation systems.

CEN 310 one-half credit
Construction Materials Lab
3 hours laboratory
Corequisite: CEN 309

A series of laboratory experiments aimed at measuring the engineering properties of asphalt, asphalt concrete and concrete to supplement the theory covered in CEN 309.

CEN 311 three credits
Hydraulic Engineering
3 hours lecture
Prerequisite: CEN 303

Hydraulic engineering topics such as hydrology, reservoirs, open channels, pipe grids, energy dissipaters and pumps. The function and design of hydraulic structures such as dams and spillways are studied. Topics also include ground water, site drainage, sediment and basin designs. A design developmental approach towards various components of a water-resources project is emphasized.

CEN 312 one half credit
Mechanics of Materials Laboratory
Corequisite: CEN 302

Laboratory experiments conducted to investigate the physical characteristics of materials and to verify the assumptions made in the course Mechanics of Materials (CEN 302).

CEN 313 one credit
Fluid Mechanics Laboratory
3 hours laboratory
Corequisite: CEN 303

Laboratory experiments supplementing the theory course CEN 303 Fluid Mechanics, with the objective of introducing the student to the field of fluid observations and experimentation.

CEN 314 one credit
Sanitary and Environmental Engineering Laboratory
3 hours laboratory
Corequisite: CEN 304

Laboratory experiments in the testing of water and wastewater. Supplements the theory course CEN 304.

CEN 321 three credits
Structural Analysis
3 hours lecture
Prerequisite: CEN 307

Current methods employed in the structural analysis of statically indeterminate structures. Influence lines and mathematical models are also introduced.

CEN 402 three credits
Engineering Economy
3 hours lecture
Prerequisite: MTH 112

A study of the principles involved in the analysis of proposed investment in capital assets for decision-making. Emphasis is placed on techniques for economy studies of multiple alternatives, uncertainties in forecasts, increment costs, taxes, retirement and replacement. Current economic issues, overview of economic decision-making and investment are also discussed. Enrollment is normally limited to engineering seniors.

CEN 403 three credits
Soil Mechanics
3 hours lecture
Prerequisites: CEN 302, 303

Physical and mechanical properties of soils including weight-volume relationships, index and classification properties, compaction, permeability and consolidation characteristics. Effective stresses and soil strength parameters are also discussed.

CEN 411 three credits
Water Quality Engineering
3 hours lecture
Prerequisite: CEN 304

Factors influencing the physical, chemical, and biological characteristics of surface and ground waters. Unit operations and processes related to water treatment are emphasized.

CEN 412 three credits
Pollution Control of Wastes
3 hours lecture
Prerequisite: CEN 411

The nature and causes of wastewater pollutants and the biological, chemical, and physical characteristics of these wastes. The analysis, treatment, and disposal of domestic, municipal, and industrial wastes are studied. Design of wastewater collection, pumping, and treatment facilities are practiced.

CEN 413 one credit
Soil Mechanics Laboratory
3 hours laboratory
Corequisite: CEN 403

Laboratory experiments in testing of various types of soils. Supplements the theory course CEN 403.

CEN 421 three credits
Matrix Methods of Structural Analysis
3 hours lecture
Prerequisite: CEN 307

The stiffness method of structural analysis. The digital computer is used as a computational tool in the analysis of plane frames, trusses and space frames. Finite element analysis is introduced.

CEN 422 three credits
Design of Structural Systems
3 hours lecture
Prerequisite: CEN 308

For students interested in a career in structural engineering, a basic understanding of the behavior of various two and three dimensional load carrying structural systems and also some means by which they can compare alternate structural systems. Design concepts, design assumptions, and methods of analysis are stressed. The selection of the optimum system for a particular type structure is also discussed.

CEN 423 three credits
Design of Foundations and Earth Structures
3 hours lecture
Prerequisites: CEN 307, 403

The design of shallow foundations (spread, combined and mat foundations), deep foundations (piles and drilled shafts), and retaining walls. Emphasis is placed on considerations of bearing capacity, settlement, and stability. The design of braced cuts, lateral earth support systems and embankments is also discussed.

CEN 431 three credits
Highway Engineering
3 hours lecture
Prerequisite: CEN 434

Design of one or more specific, current highway projects, with application of planning, design, construction, and maintenance. Includes appropriate analysis and design of economics, drainage, soils, earthwork, and pavements.

CEN 434 three credits
Traffic Engineering
3 hours lecture
Prerequisite: CEN 309

Introduction to the concepts of movement control. Discussion and quantitative appraisal of the characteristics of the transport user, the vehicle, the road, the navigation and control systems. Written and oral reports are assigned on field data collections and evaluations of typical control problems, traffic studies, road user reactions, and potential future transport systems.

CEN 443 three credits
Advanced Hydrology and Hydraulics
3 hours lecture
Prerequisite: CEN 311

Explores the relationship of hydrology and hydraulics, with the ultimate goal of designing a project. The concepts of precipitation, runoff, and hydrograph analysis and synthesis are emphasized. Additional topics include frequency analysis, flood routing, hydrologic synthesis and simulation techniques for large basins as well as urban and small watersheds. Topics also included are: backwater curves, submerged weirs, and water hammer. All subjects are primarily focused in developing and designing a comprehensive hypothetical water-resources project with computer use as cornerstone.

CEN 491 three credits
Civil Engineering Honors Project
Prerequisites: Senior status, cumulative average at or above 3.2

The course is intended to give the civil engineering senior, who has demonstrated high academic achievement, the opportunity to conduct an independent, individual civil engineering project.

CEN 493 three credits
Aesthetics of the Built Environment
3 hours lecture
Prerequisite: senior status

Aesthetics of the built environment for civil engineers (all specialities) with little or no formal training in aesthetics and visual design. Emphasis will be placed upon building a firm foundation upon which an aesthetic sensitivity can be developed by the student. In addition, each student will have the opportunity to attempt some visual design.

CEN 494 three credits
Introduction to Construction Engineering and Construction Management
3 hours lecture
Prerequisites: CEN 308, 403

Introduction to construction engineering for Civil Engineering majors. Construction engineering applications such as formwork and falsework design, earthwork compaction and compaction equipment and concrete construction are studied. Also, various types of construction equipment such as excavation equipment, loading and hauling equipment, are also studied. Job planning and management, including critical path method applications, are studied.

CEN 495
Independent Study

CEN 496
Directed Study

CEN 900
Contract Learning

Electrical and Computer Engineering

Two undergraduate majors are offered by the department: Electrical Engineering and Computer Engineering. Both of these programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The department also offers graduate programs leading to the M.S. and Ph.D. degrees in Electrical Engineering. For details consult the Bulletin of the Graduate School.

Faculty and Fields of Interest

Ardsher Ahmed computers, parallel processing

David Brown underwater acoustics, fiber-optic sensors and systems, viscoelasticity

Paul R. Caron antennas, plasmas, computers

Robert H. Caverly (chairperson) microwave and solid state electronics, wave propagation

Chi-Hau Chen communications systems, pattern recognition, signal processing

Antonio H. Costa mixed time-frequency representations, spectral estimation, signal processing

Thomas J. Curry (dean of the college) signal processing, computer systems, underwater systems

Lee E. Estes electro-optics, underwater systems, remote sensing

Gilbert Fain underwater acoustics, active circuits

Paul J. Fortier databases, networks, real time systems, computer systems

Dayalan P. Kasilingam electromagnetics, radar, optics, remote sensing

Peter T. Kenyon electromagnetics, microelectromechanical systems

Gerald Lemay digital/audio signal processing

Daniel J. Murphy systems analysis, filter theory, performance assessment

Steven C. Nardone systems theory, modern control and estimation theory, signal processing

Karen Payton speech acoustics, speech perception

Nixon A. Pendergrass digital signal processing, time-frequency analysis, adaptive filtering, parameter estimation

David Rancour solid state devices, semiconductor materials

Roman Rutman control theory, systems analysis

Dean J. Schmidlin linear systems, signal processing

Electrical Engineering Major
BS degree

The Electrical Engineering program is designed to prepare students for careers as practicing engineers in the wide variety of fields concerned with electrical and electronic devices and systems. For those students who intend to pursue either full or part-time graduate studies, this program provides the student with the necessary background.

Electrical Engineering encompasses many specialties such as communication, instrumentation, automation, power use and distribution, microwave devices and systems, and digital and analog techniques. In all of these specialties electrical engineers must be familiar with devices and systems and must be able to perform various functions such as research and development, systems analysis, management, production, testing, quality control, and sales. They may pursue careers in monitoring and control of the environment, space exploration, transportation systems, ocean engineering, energy resources, and computers.

A core of basic science and mathematical courses is interwoven throughout the four years of study, and the student also selects 15 credit hours in the humanities and social sciences. The students begin to identify with their field in the first and second year of study, and in the third year they gain a foundation for further study in all branches of electrical engineering. A senior year composed primarily of elective courses allows the students to concentrate their studies in one or more areas of their choice. A faculty advisor from the department is available to aid students with their selections. Six credit hours of free electives can also be used for specialized study.

The Electrical Engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The student can associate with his or her profession through the student chapter of the Institute of Electrical and Electronics Engineers. Qualified students can join the Zeta Xi Chapter of the Electrical Engineering National Honor Society, Eta Kappa Nu.

Requirements — Semester Credits

		First	Second
First Year			
ECE 191	Computer Tools for Electrical Engineers	2	
PHY 113	Classical Physics I		4
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 161, 162	Introduction to Applied Chemistry, I, II	1	1
ENL 101, 102	Critical Writing and Reading I, II	3	3
CIS 111	Computer Programming		3
	Humanities/Social Science Elective	3	
		16	**18**
Second Year			
ECE 201, 202	Circuit Theory I, II	3	3
ECE 251, 252	Electrical Measurements Lab I, II	1	1
MTH 211	Analytical Geometry and Calculus III	4	
PHY 213	Introduction to Modern Physics		3
ECE 261	Digital Logic and Design	3	
MTH 212	Differential Equations		3
EGR 232	Engineering Thermodynamics		3
ECE 262	Computer Design		3
PHY 114	Classical Physics II	4	
ENL 266	Technical Communications	3	
		18	**16**
Third Year			
ECE 311, 312	Electronics I, II	3	3
ECE 321, 322	Linear Systems Theory I, II	3	3
ECE 335, 336	Electromagnetic Theory I, II	3	3
ECE 351, 352	Electrical Engineering Lab I, II	1	1
EGR 301	Applied Engineering Math	3	
ECE 231	Electrical Materials Science		3
	Humanities/Social Science Electives	3	3
		16	**16**
Fourth Year			
ECE 451	Electrical Engineering Lab III	1	
ECE 471	Communication Theory	3	
ECE 457, 458	Electrical Engineering Design Project I, II	1	3
	*Technical Electives	6	6
	Free Electives	3	3
	Humanities/Social Science Electives	3	3
		17	**15**
	Total Credits:		**132**

*
Must be taken from approved list.

Technical Electives

All Electrical Engineering students must choose technical electives from this list. Students must complete at least one Advanced Electrical Engineering Sequence in their electives as listed below.

ECE 369
Software Engineering
ECE 384
Random Signals and Noise
ECE 400
Engineering Internship
ECE 401, 402
Undergraduate Research and Independent Study
ECE 403
Special Topics in Electrical Engineering
ECE 404, 405
Undergraduate Design Project I, II
ECE 411, 412
Active Circuits I, II
ECE 413
Introduction to VLSI Design
ECE 414
VLSI Design
ECE 431
Antennas and Propagation
ECE 433
Advanced Electromagnetic Theory
ECE 434
Ionospheric Radio Propagation
ECE 435, 436
Microwave Theory I, II
ECE 438
Optical Devices
ECE 441
Energy Conversion Devices
ECE 442
Power Electronics
ECE 443, 444
Power Systems I, II
ECE 461, 462
Computer Architecture I, II
ECE 464
Digital System Design
ECE 465
Microprogrammed Design
ECE 468
Network Application Programming
ECE 469
Computer Networks
ECE 472
Advanced Communication Systems
ECE 475
Introduction to Digital Signal Processing
ECE 476
Information Transmission and Coding
ECE 477
Digital Processing of Speech Signals
ECE 481, 482
Control Theory I, II
ECE 484
Optimization Theory
ECE 490
Algorithms
ECE 492
Robotics
ECE 493
Principles of Underwater Systems
ECE 494
Advanced Computer Architectures
MNE 482
Robotics
PHY 341, 342
Modern Physics and Quantum Mechanics I, II
PHY 543
Statistical Thermodynamics
PHY 544
Elements of Solid State Physics
MTH 311, 312
Advanced Calculus I, II
MTH 332
Statistical Methods II
MTH 353
Applied Linear Algebra
MTH 361, 362
Numerical Analysis I, II
Any 400- or 500-level MTH or CIS course except seminars or individual study.

NOTE:
ECE graduate courses at the 500 level are available as electives for advanced seniors with written permission of the instructor and the student's advisor.

Advanced Electrical Engineering Sequences

ECE 411, 412
Active Circuits I, II
ECE 413, 414
Introduction to VLSI Design, VLSI Design
ECE 433, 434
Advanced Electromagnetic Theory, Ionospheric Radio Wave Propagation
ECE 435, 436
Microwave Theory I, II
ECE 443, 444
Power Systems I, II
ECE 461, 462
Computer Architecture I, II
ECE 464, 465
Digital Systems Design, Microprogrammed Design
ECE 475, 477
Introduction to Digital Signal Processing, Digital Processing of Speech Signals
ECE 481, 482
Control Theory I, II

Computer Engineering Major
BS degree

Computer Engineering encompasses a broad spectrum of changing and challenging activities such as research, design and development in computer systems, hardware and software, as well as electronic components which are used in the computer industry. The Computer Engineering program prepares students with a strong science background and engineering knowledge to meet the changing high-technology needs in the computer area, and for graduate study in computer and electrical engineering.

Specialization opportunities are offered in microprocessors and microcomputer systems, advanced software development, computer communications, digital signal processing, computer graphics as well as the design of information processing systems.

The Computer Engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Students may join the IEEE Computer Society, a professional society with its local chapter at the Department.

Requirements — Semester Credits

		First	Second
First Year			
ENL 101, 102	Critical Writing and Reading I, II	3	3
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
MTH 111, 112	Analytical Geometry and Calculus I, II	4	4
PHY 113	Classical Physics I		4
CIS 111	Computer Program	3	
CIS 211	Introduction to Program Design & Data Structures		3
ECE 191	Computer Tools for Electrical Engineers	2	
		15	**17**
Second Year			
ECE 201, 202	Circuit Theory I, II	3	3
ECE 252	Electrical Measurements Lab		1
MTH 211	Analytical Geometry and Calculus III	4	
ECE 261	Digital Logic and Design	3	
ECE 262	Computer Design		3
MTH 212	Differential Equations		3
ECE 231	Electrical Materials Science		3
	Humanities/Social Science Elective	3	
PHY 114	Classical Physics II	4	
ENL 266	Technical Communications		3
		17	**16**
Third Year			
ECE 311, 312	Electronics I, II	3	3
ECE 321	Linear Systems Theory I,	3	
ECE 351, 352	Electrical Engineering Lab I, II	1	1
MTH 331	Statistical Methods I	3	
ECE 490	Algorithms		3
	Humanities/Social Science Electives	3	3
ECE 461, 462	Computer Architecture I, II	3	3
ECE 292	Computer Engineering Math		3
		16	**16**
Fourth Year			
ECE 453, 454	Computer Engineering Lab I, II	1	1
ECE 459	Design Project		3
	*Technical Electives	3	3
	Humanities/Social Science Electives	3	3
ECE 457	Electrical Engineering Design Project I	1	
ECE 413	Introduction to VLSI Design	3	
ECE 367	Operating Systems	3	
ECE 369	Software Engineering	3	
ECE 494	Advanced Computer Architectures		3
ECE 468	Network Application Programming		3
		17	**16**
	Total credits:		**130**

*
Must be taken from approved list.

Technical Electives

All Computer Engineering students must choose technical electives from this list.

ECE 384
Random Signals and Noise
ECE 403
Special Topics in Electrical Engineering
ECE 411, 412
Active Circuits I, II
ECE 414
VLSI Design
ECE 438
Optical Devices
ECE 441
Energy Conversion Devices
ECE 442
Power Electronics
ECE 469
Computer Networks
ECE 471
Communication Theory
ECE 472
Advanced Communication Systems
ECE 475
Introduction to Digital Signal Processing
ECE 476
Information Transmission and Coding
ECE 477
Digital Processing of Speech Signals
ECE 481, 482
Control Theory I, II
ECE 484
Optimization Theory
ECE 492
Robotics
ECE 493
Principles of Underwater Systems
ECE 494
Advanced Computer Architectures
PHY 341, 342
Modern Physics and
Quantum Mechanics I, II
PHY 441
Statistical Thermodynamics
PHY 442
Elements of Solid State Physics
MTH 311, 312
Advanced Calculus I, II
MTH 332
Statistical Methods II
MTH 353
Applied Linear Algebra
MTH 361, 362
Numerical Analysis I, II
Any 400- or 500-level math
or CIS course except
seminars or individual study.

Note:
ECE graduate courses at the 500 level are available as electives for advanced seniors *with written permission of the instructor and the student's advisor.*

ECE 191 two credits
Computer Tools for Electrical Engineers
1 hour lecture, 3 hours laboratory

Personal computer tools that will be useful throughout the student's academic and professional career. Topics include operation of the personal computer, DOS, Matlab, Windows, word processing, computer graphics, and spreadsheets. Applications selected are appropriate to electrical engineers.

ECE 201 three credits
Circuit Theory I
3 hours lecture
Prerequisite: MTH 112

The basic theory and techniques of circuit analysis. Topics include resistive circuits, dependent sources, analysis methods, network theorems, energy-storage elements, simple RC and RL circuits, second-order circuits, sinusoidal excitation and phasors.

ECE 202 three credits
Circuit Theory II
3 hours lecture
Prerequisite: ECE 201

Phasors for analyzing networks in the sinusoidal steady state. Topics include AC steady-state power, three-phase circuits, complex frequency, network functions, frequency response, transformers, Fourier series, Laplace transforms, and Laplace transform applications.

ECE 211 three credits
Elements of Electrical Engineering I
3 hours lecture
Prerequisite: MTH 112

Basic principles of electrical circuits, signal processing circuits, natural, forced, and complete responses, AC analysis including phasors and frequency response, diode and transistor circuits. This course is taken by non-ECE majors.

ECE 212 three credits
Elements of Electrical Engineering II
3 hours lecture
Prerequisite: ECE 211

Basic principles of amplifiers, feedback systems, operational amplifier applications, logic elements, and digital logic circuits, magnetic circuits, transformers, electromechanical transducers and systems, DC and AC machines. This course is taken by non-ECE majors.

ECE 231 three credits
Electrical Materials Science
3 hours lecture
Prerequisites: PHY 114, CHM 152, ECE 201, MTH 211
Corequisite: MTH 212

The physics of materials, approached from a nonstatistical direction. The first part of the course deals with charge carriers in crystalline materials and the concept of transport phenomena. The concepts of energy bands, charge densities and density of states, doping, mobility and resistivity are introduced. The second part of the course builds on these concepts by discussion of the operation and physics of junction diodes and bipolar transistors. Light emitting diodes and diode lasers are introduced.

ECE 251 one credit
Electrical Measurements Lab I
Corequisite: ECE 201

This course is the first of a two-semester lab sequence in the sophomore year. Topics include experimental techniques, laboratory report preparation, familiarization and use of instrumentation, passive circuit investigations, and computer modeling experiments. Instruction in laboratory protocol and safety issues will be included.

ECE 252 two credits
Electrical Measurements Lab II
3 hours laboratory; 1 hour lecture
Prerequisite: ECE 251
Corequisite: ECE 202

The second semester of the two-semester lab sequence in the sophomore year. Topics include passive circuit investigations, steady-state and transient analysis, electrical instruments, magnetic and logic circuit investigations, and computer modeling experiments. Instruction in laboratory protocol and safety issues will be included.

ECE 261 three credits
Digital Logic and Design
3 hours lecture
Prerequisite: College-level algebra

An introduction to digital techniques from a functional point of view. This course provides the basics of binary arithmetic, logic functions and design with digital devices. Material covered includes quantization, binary numbers and codes, Boolean algebra, digital circuit elements, and digital algorithms.

ECE 262 three credits
Computer Design
3 hours lecture
Prerequisite: ECE 261

Continuation of ECE 261. Introduction to the hardware structure of computers, including memory structure, register operations, bus units, computer instructions, and addressing modes. The complete design of a simple CPU is developed.

ECE 292 three credits
Computer Engineering Mathematics
3 hours lecture
Corequisites: MTH 211, 212

A study of mathematical methods useful to the computer engineer, including topics from numerical analysis and linear algebra. A large number of problems are to be solved on the computer.

ECE 311, 312 three credits each
Electronics I, II
3 hours lecture each
Prerequisites: ECE 202 for ECE 311; ECE 311 for ECE 312

Principles and circuit modeling of semiconductor devices. Amplifier design and analysis, including such topics as low-frequency amplifiers, multi-stage design, bandpass amplifiers, transient and frequency response, will be discussed. Other topics will be operational amplifiers, oscillators, and digital circuits.

ECE 321, 322 three credits each
Linear Systems Theory I, II
Prerequisites: MTH 212, ECE 202 for ECE 321; ECE 321 for ECE 322

Properties of linear systems and the techniques of analysis in both the time and frequency domains. Topics include: time domain signal representation, block diagram and signal flow graph representation of systems, properties of linear time invariant systems, time domain convolution theorem, impulse response, stability and causality, continuous and discrete time Fourier series and Fourier transforms, sampling theorem, transfer function, frequency response, poles and zeros, Bode plots, response of second-order systems and filters, Laplace and Z-transforms, feedback systems, Mason's Rule, stability criterion, root-locus, Nyquist stability criterion, gain and phase margins, applications of feedback control systems.

ECE 324 three credits
Computer-Aided Network Analysis
Prerequisites: Fortran and Introductory Circuit Theory

Introduction to computer-aided analysis of electrical networks. No prior knowledge, other than introductory classical circuit theory and Fortran, is assumed. Matrix theory and network topology will be used to write complete circuit analysis programs. Techniques of numerical solutions for classical differential equations and solutions of state equations will be covered. The course will also include the use of a generalized electronic circuit analysis program, such as ECAP.

ECE 335 three credits
Electromagnetic Theory I
3 hours lecture
Prerequisite: PHY 114
Corequisite: EGR 301

Fundamentals of electrostatic, magnetostatic, and time-varying fields leading to Maxwell's equations. Topics include the electromagnetic model, vector analysis in terms of a generalized orthogonal coordinate system, static electric fields, solution of electrostatic problems, steady electric currents, static magnetic fields, time-varying fields and Maxwell's equations.

ECE 336 three credits
Electromagnetic Theory II
3 hours lecture
Prerequisite: ECE 335

Fundamentals of electromagnetic wave theory with applications. Topics include review of time-varying fields and Maxwell's equations, plane electromagnetic waves, theory and applications of transmission lines, waveguides, cavity resonators, antenna and radiating systems.

ECE 351, 352 one credit each
Electrical Engineering Laboratory I, II
3 hours laboratory each
Prerequisites: ECE 202, 252 for ECE 351; ECE 261, 311, 351 for ECE 352
Corequisites: ECE 311 for ECE 351; ECE 312 for ECE 352

This two-semester laboratory series includes the use of measuring instruments and techniques in the investigation of non-linear device characteristics, and the network response of basic electronic circuits. Emphasis is on semiconductor devices. Instruction in laboratory protocol and safety issues will be included.

ECE 363 three credits
Introduction to Computer Engineering
3 hours lecture
Prerequisites: ECE 261, CIS 260

This course will use a specific microcomputer system to introduce general topics in computer engineering. Topics such as computer architecture, assembly language programming, data structures and operating systems will be introduced. Students will be exposed to the use of cross-assemblers and simulators for microprocessors on UMass Dartmouth's main-frame computer system.

ECE 367 three credits
Operating Systems
3 hours lecture
Prerequisites: CIS 211, ECE 363

Batch systems, multiprogramming and timesharing. Concurrent and cooperating processes; critical sections and semaphore; scheduling policies, memory management and file management.

ECE 369 three credits
Software Engineering
3 hours lecture
Prerequisites: ECE 262 and ECE 363 or CIS 111 and ECE 363

The complete software life cycle from development to testing and maintenance is studied. Modern case tools are utilized, and design and testing methodologies are emphasized. Projects will be done on a 386-based machine.

ECE 384 three credits
Random Signals and Noise
3 hours lecture
Prerequisite: ECE 321

Probability, correlation functions, power spectral density, linear filters, signal-to-noise ratio, and others.

ECE 400 three credits
Engineering Internship
Prerequisite: Senior standing; submission of a detailed project proposal to be approved by the EE Curriculum Committee

An electrical or computer engineering project performed under the joint supervision of an industrial or governmental sponsor and a faculty advisor. ECE 400 is an approved 3-credit technical elective. ECE 400 may not be substituted for ECE 457/458, senior design project.

ECE 401, 402 three credits each
Undergraduate Research
Prerequisite: Senior standing

Investigations of a fundamental and/or applied nature, intended to develop research techniques, initiative, and self-reliance. Also, studies are conducted in areas not included in the formal course offerings. Admission to the course is based on a formal proposal endorsed by an advising professor. On the recommendation of the advising professor, the course may be extended for another three credits.

ECE 403 three credits
Special Topics in Electrical Engineering
Topics of interest to electrical engineering. Course contents may vary from year to year.

ECE 404, 405 three credits
Undergraduate Design Project I, II
Prerequisite: Senior standing

A design project developed under the supervision of an advising professor.

ECE 411, 412 three credits
Active Circuits I, II
3 hours lecture
Prerequisites: ECE 311, 312 or equivalent

The manipulations and generation of signals using primarily operational amplifiers. Active filters, sample and hold circuits, D/A and A/D's, and phase locked loops are among the devices studied.

ECE 413 three credits
Introduction to VLSI Design
3 hours lecture
Prerequisites: ECE 261 or equivalent; senior status

This course is an introduction to design of Very Large Scale Integrated Circuits (VLSI), taught at the gate level. Significant emphasis will be placed on circuit timing, simulation and layout techniques through the use of computer-aided design tools available in the Computer Aided Engineering Laboratory. A final project, consisting of a student's design, can be submitted for fabrication.

ECE 414 three credits
VLSI Design
3 hours lecture
Prerequisite: ECE 413

Continuation and expansion of the concepts developed in ECE 413. The emphasis will be on cmos with occasional references to nmos to make comparisons. Each student will be required to complete the design of a reasonably complex IC and make a presentation to the class of its design methodology, expected behavior and correlation with simulation results. Therefore discussion of testing and design for testability will also be part of this course.

ECE 431 three credits
Antennas and Propagation
3 hours lecture
Prerequisite: ECE 336

This course involves radiating systems including arrays, aperture antennas, and broad-band antennas. Also discussed are groundwave propagation and ionospheric propagation.

ECE 433 three credits
Advanced Electromagnetic Theory
3 hours lecture
Prerequisite: ECE 336 or permission of instructor

Vector analysis in a generalized orthogonal coordinate system. Two- and three-dimensional boundary-value problems, waveguides with cylindrical conducting boundaries, special waveguide types, resonant cavities, and radiation are studied.

ECE 434 three credits
Ionospheric Radio Propagation
3 hours lecture
Prerequisite: ECE 336

This course is an examination of the various atmospheric processes that can affect radio wave propagation in both the troposphere and the ionosphere. Topics to be covered include the Chapman Theory, Maxwell's Equations in ionized media, and the effect of temperature inversions on wave propagation. Experimental techniques used in probing the ionosphere will also be discussed.

ECE 435 three credits
Microwave Theory I
3 hours lecture
Prerequisite: ECE 336 or equivalent

Transmission-line theory is reviewed. The characteristics of TEM lines and waveguides are studied in detail. Impedance matching networks are designed and evaluated, including the multisection quarter-wave transformer. The analysis and design of various one- and two-port components are discussed. Both coaxial and waveguide versions are described.

ECE 436 three credits
Microwave Theory II
3 hours lecture
Prerequisite: ECE 435

The use of transmission-line theory and electromagnetic theory in the design of filters, hybrids, and couplers is covered. The scattering matrix is utilized as an analytical tool. Computer methods for analyzing microwave circuits are also employed. The theory of ferrimagnetic resonance is used to explain the operation of ferrite isolators and circulators. Semiconductor control circuits containing varactor and PIN diodes are analyzed in detail.

ECE 438 three credits
Optical Devices
3 hours lecture
Prerequisite: Junior or senior standing

This course deals with the behavior and principles of operation of the following devices: lenses, prisms, polarizers, waveplates, interferometers, filters, beam splitters, light sources including lasers, light modulators, light detectors, film, microdensitometers, image intensifiers.

ECE 441 three credits
Energy Conversion Devices
3 hours lecture
Prerequisites: ECE 202, 221

There are many methods of energy conversion of interest to engineering. This course is a study of energy sources, conversion, and storage. Included will be a thermoelectric process and electrochemical processes. Specialized devices utilizing modern concepts of energy conversion will be surveyed.

ECE 442 three credits
Power Electronics
3 hours lecture
Prerequisite: Senior ECE standing

A study of electronic circuit design based upon power transistors and fixed and/or controlled rectifiers. DC power supplies, choppers, inverters, converters, and cycloconverters are investigated, with applications including high-voltage DC transmission systems and DC and AC machine control as applied to drive systems in industry and transportation.

ECE 443 three credits
Power Systems I
3 hours lecture
Prerequisite: ECE 202, 321 or equivalent

The first semester of the study of power systems will include a general review of the system components (generators, transformers, transmission lines, and loads) necessary for proper system modeling and analysis. Load-flow studies and the methods used will be discussed.

ECE 444 three credits
Power Systems II
3 hours lecture
Prerequisite: ECE 443

A continuation of ECE 443, this course will include the study of three-phase faults, symmetrical components, unsymmetrical faults, and system protection. A review of the stability problem will also be covered.

ECE 451 one credit
Electrical Engineering Laboratory III
3 hours laboratory
Prerequisites: ECE 312, 335, 352, 363
Corequisite: ECE 471

This is a continuation of the laboratory sequence and will include laboratory work in electronics, microwaves, communications, and control systems. Instruction in laboratory protocol and safety issues will be included.

ECE 453 one credit
Computer Engineering Laboratory I
3 hours laboratory
Prerequisite: ECE 352
Corequisites: ECE 461, 464

Laboratory work in computer systems. Instruction in laboratory protocol and safety issues will be included.

ECE 454 one credit
Computer Engineering Laboratory II
3 hours laboratory
Prerequisites: ECE 453, 461, 464
Corequisites: ECE 462, 465

Conclusion of the undergraduate laboratory sequence for computer engineering students. Instruction in laboratory protocol and safety issues will be included.

ECE 457 one credit
Design Project I
1 hour lecture
Prerequisites: ECE 352, ENL 266
Corequisite: The first course in an Advanced Electrical Engineering Sequence

Laboratory and classroom work that prepares electrical engineering students for success in their design work. This course is part of a two-course sequence with Design Project II (ECE 458). Laboratory hours will be arranged with faculty.

ECE 458 three credits
Design Project II
1 hour lecture; 6 hours laboratory
Prerequisites: ECE 451, 457
Corequisite: The second course in an Advanced Electrical Engineering Sequence

Conclusion of the undergraduate laboratory sequence featuring the completion of a design project. Laboratory hours will be arranged with faculty.

ECE 459 three credits
Design Project
9 hours laboratory
Prerequisite: Senior standing
Corequisites: ECE 462, 465

Conclusion of the undergraduate computer engineering laboratory sequence featuring the implementation of a design project.

ECE 461, 462 three credits each
Computer Architecture I, II
3 hours lecture for each 3 credits
Prerequisite: ECE 363

The architecture of 16-bit microcomputers will be discussed with emphasis on multiprocessing features. The instruction set, I/O handling, interfacing interrupts and bus structures will be discussed. Use will be made of cross-assembler, simulators and high-level languages. A real-time operating system will be discussed utilizing flow charts and the coding will be presented and analyzed. Prioritized task scheduling in a real-time interrupt driven environment will be discussed. The course will also deal with multiprocessing topics such as bus interfacing, co-processors, bus arbitration, etc.

ECE 464 three credits
Digital Systems Design
3 hours lecture
Prerequisite: ECE 261

State machines. Synthesis using various digital technologies.

ECE 465 three credits
Microprogrammed Design
3 hours lecture
Prerequisites: ECE 363, 464

ROM centered design, beginning with small controllers and progressing to computers. Various devices and techniques will be considered (e.g. PIIA's, pipelining, etc.)

ECE 468 three credits
Network Application Programming
3 hours lecture
Prerequisites: CIS 313 or ECE 367 and C Programming

The methodologies of network programming and the implementation of network applications. Topics include client-Server model, threads, and synchronization in a distributed computing environment. Interprocess communication (System V IPC and BSD sockets), communication protocols (e.g. UDP, TC/IP, and X), remote procedure calls (RPC) for both OSF and Sun environments, session layer programming (XTI), distributed file systems (NFS and NIS) and distributed computing environments (DCE and ONC) are also covered.

ECE 469 three credits
Computer Networks
Prerequisite: ECE 367

Introduction to current networking methodologies, queueing theory and backbone design; layered architecture, protocols and distributed computer networks.

ECE 471 three credits
Communication Theory
3 hours lecture
Prerequisite: ECE 321

Fourier series and transforms, signals and linear networks, and energy and power spectral density are reviewed. Probability and noise concepts are discussed and applied to the computation of entropy, the design of optimum codes, and the description of error resulting from analog-to-digital conversion processes. Digital communications including sampling theory, pulse code modulation, digital pulse shaping, and time/frequency division multiplexing are covered. Broadcast, double, single and vestigial amplitude modulation and phase and frequency modulation are examined. Several applications are considered.

ECE 472 three credits
Advanced Communications Systems
3 hours lecture
Prerequisite: ECE 471

A continuation of ECE 471. Probability theory, central-limit theorem, and random processes are introduced. Amplitude and angle modulation systems as well as pulse code modulation systems are examined in the presence of noise. Optimum binary detection in the presence of noise is determined. Channel capacity is derived. Block and convolutional error-correcting codes are introduced.

ECE 475 three credits
Introduction to Digital Signal Processing
3 hours lecture
Prerequisite: ECE 321

Sampling process, A/D and D/A conversions, discrete-time linear systems, recursive and nonrecursive digital filter designs and implementations, fast algorithms for discrete Fourier transforms, high-speed convolution and correlation, and applications to digital processing of real data.

ECE 476 three credits
Information Transmission and Coding
3 hours lecture
Prerequisite: ECE 471

Self-information and entropy, sources of information, the structure of language, noiseless coding and the noiseless discrete channel, some properties of codes, the construction of codes, mutual information, channel capacity and Shannon's theorems, error-correcting codes and decoding algorithms, applications to communication nets.

ECE 477 three credits
Digital Processing of Speech Signals
3 hours lecture
Prerequisite: ECE 475

Fundamentals of digital signal processing, digital models for the speech signal, time-domain methods for speech processing, digital representations of the speech waveform, short-time Fourier analysis, homomorphic speech processing, linear predictive coding of speech, man-machine communication by voice.

ECE 481, 482 three credits each
Control Theory I, II
3 hours lecture each
Prerequisites: ECE 321, 322

This two-semester course sequence is a continuation of the systems sequence. Control Theory I is classical control of single-input single-output systems. Both time domain and frequency domain analysis and design techniques are presented. Subjects included are signal flowgraphs, control devices, root-locus, Bodé plots, Routh-Horwitz criterion, Nyquist stability, phase lead/lag controllers and PID controllers. Control Theory II introduces control of discrete systems, modern control theory and non-linear control. Concepts of discrete systems, state variables, observability, controllability, phase plane, and relay control are surveyed.

ECE 484 three credits
Optimization Theory
3 hours lecture
Prerequisite: Calculus and some linear algebra

Introduction to mathematical programming techniques and their application to engineering problems as well as to other fields. Unconstrained optimization techniques are stressed. Additional topics including linear and quadratic programming are discussed. Computer solutions are emphasized.

ECE 490 three credits
Algorithms
3 hours lecture
Prerequisites: MTH 112, CIS 211, ECE 262, and ECE 292

Computer algorithm design concepts, computational complexity, NP-completeness, and the design and analysis for efficient algorithms. Topics include data structures, sorting, graph, shortest path, depth first search, breadth first search, and network flow algorithms, computational geometry, dynamic programming, linear programming, and parallel and distributed algorithms.

ECE 492 three credits
Robotics
2 hours lecture, 3 hours laboratory
Prerequisites: ECE 363, 312

A senior elective introducing robot kinematics, dynamics, mechanisms, controllers, computer control, sensors, and sensor feedback. Students will be required to develop and implement a simple computer robotics command and control language and to implement a robot sensor with feedback.

ECE 493 three credits
Principles of Underwater Systems
3 hours lecture
Prerequisites: Senior standing in College of Engineering

This course exposes the engineering student to the principles that govern the design and operation of underwater systems. The student should develop a broad understanding of underwater systems that will prepare him/her for more advanced studies and/or engineering projects in underwater systems. Topics include generation of sonar signals, sound propagation in the ocean, design of sonar systems, and detection of sonar signals.

ECE 494 three credits
Advanced Computer Architectures
3 hours lecture
Prerequisites: ECE 262, 462

Advanced computer design and performance evaluation concepts, pipelining, RISC, superscalar, superpipelined, vector processing, hierarchical-memory, and parallel processing architectures. Topics include CPU performance and cost analysis, instruction set design, microprogramming, pipelining, cache memory, vector processors, I/O, SIMD, and MIMD computational models.

ECE 495 three credits
Independent Study

ECE 496 three credits
Directed Study

ECE 900
Contract Learning

Graduate Courses in Electrical and Computer Engineering

Note: Some graduate courses are open to undergraduates, with written permission of the instructor or the student's advisor. The official list of graduate courses is published in the Graduate Catalog.

ECE 501, 502 three credits each
Graduate Research
Prerequisite: Submission of a formal proposal endorsed by an advising professor

Investigations of a fundamental and/or applied nature, intended to develop design techniques, research techniques, initiative, and self-reliance. Admission to the course is based on a formal proposal endorsed by an advisor and submitted to the Graduate Director.

ECE 505 three credits
Numerical Methods
3 hours lecture
Prerequisite: Permission of instructor

Computer-aided techniques and the use of a numerical approach in the solution of problems for which analytical methods are impractical or impossible. Pitfalls and errors in computer methods will be reviewed. MATLAB will be used on personal computers. Course topics include: root-finding methods, iteration methods, matrix operations and evaluations, interpolation methods, solutions of ordinary differential equations. An emphasis is given to the least square techniques of numerical linear algebra.

ECE 511 three credits
Application of Active Circuits
3 hours lecture
Prerequisite: Permission of instructor

Analog design techniques with emphasis on the use of operational amplifiers. Topics include stability, noise, and applications. Problems will be solved on workstations.

ECE 515 three credits
Modern Optics
3 hours lecture
Prerequisite: Permission of instructor

Fermat's Principle, geometrical optics, diffraction theory, Huygens Principle, coherence, Fourier optics, modulation transfer function, side looking radar, holography and lens aberrations.

ECE 517 three credits
Optical Fiber Communications
3 hours lecture
Prerequisites: Fourier analysis and Electromagnetics

Optical fibers: structures and wave-guiding, signal degradation in optical fibers, optical sources, power launching and coupling, photodetectors, optical receiver operation, transmission link analysis, measurements, and optical fiber fabrication and cabling.

ECE 521 three credits
Random Signal Analysis I
3 hours lecture
Prerequisite: ECE 471 or equivalent

Random variables and probability distributions, statistical averages including correlation functions, sampling theory, spectral analysis, the Gaussian process, shot noise, and the detection of signals in noise. The course will include several laboratory demonstrations of signal processing techniques.

ECE 522 three credits
Random Signal Analysis II
3 hours lecture
Prerequisite: ECE 521 or equivalent

A continuation of ECE 521. Measurement of correlation functions and probability densities, statistical detection of signals, optimum filtering and prediction, and the statistical description of non-linear devices are studied.

ECE 523 three credits
Digital Spectral Analysis
3 hours lecture
Prerequisites: ECE 521 and either ECE 475 or ECE 574 or equivalent

A broad perspective of spectral estimation techniques with particular emphasis on their implementation in a computer. Both classical and short data record high resolution techniques are studied. Topics include: The Fourier transform and the Fourier series and sampling effects; properties of the Discrete Fourier Transform (DFT); classical periodogram spectral estimation; autoregressive spectral estimation (Yule-Waler, Burg Least Squares Linear Prediction); autoregressive-moving average spectral estimation; Prony's method and the Prony spectrum. The student uses computer subroutines developed in the course to solve practical spectral estimation problems on a computer. Throughout the course applications are presented in areas such as electronics, sonar, radar, and the study of physical processes.

ECE 524 three credits
Solid State Electronics
3 hours lecture
Prerequisite: Graduate standing or permission of instructor

Solid state device behavior. Among the topics covered are semiconductor fundamentals, p-n junction theory, and both the bipolar and the field effect transistor. Emphasis will be placed on those transistor parameters that need to be considered in VLSI and microwave applications.

ECE 525 three credits
Digital Filters
3 hours lecture
Prerequisites: ECE 574 or ECE 475, and ECE 521 or ECE 384 or the equivalent

Design, simulation, and implementation of digital filters. After a review of classical FIR and IIR design techniques and modern AR, MA, and ARMA techniques, the course immerses the student in problem solving with digitized signals and DSP microprocessors. These problems include noise reduction, echo cancellation, signal detection, etc. Computer simulation is an integral part of this course, and students are expected to have some familiarity with small computer operating systems and assembly language programming concepts.

ECE 527 three credits
Active Remote Sensing of the Environment
2 1/4 hours lecture, 3/4 hours laboratory
Prerequisites: ECE 335, 336, and 384

Principles and applications of active remote sensing techniques. Course will focus on microwave and millimeter wave radar techniques. Some topics in the use of lidar and sonar will also be covered. Topics will include synthetic aperture radar, scatterometers, altimeters, polarimetric radars and fluorescence lidars. Applications will include ecosystem monitoring, soil moisture measurements, oceanography and precipitation studies.

ECE 528 three credits
Passive Remote Sensing of the Environment
2 1/4 hours lecture, 3/4 hours laboratory
Prerequisites: ECE 335, 336, and 384

Principles and applications of passive remote sensing techniques. Course will include the use of sensors such as thematic mappers multispectral scanners, advanced high resolution radiometers and multispectral microwave radiometers. Applications will include ocean color measurements, biomass measurement, marine pollution monitoring and atmospheric measurements.

ECE 531 three credits
Software Life-Cycle Engineering
3 hours lecture
Prerequisite: permission of instructor

Development and maintenance of large scale computer programs is studied with emphasis on the methodologies that yield maintainable software. The life-cycle phases of computer software are analyzed in the context of integration, verification, validation and associated software testing. Structured analysis and design techniques are introduced, and the importance of the configuration management function is emphasized. Other topics include requirements for development and maintenance facilities, necessity of software change control boards, and the techniques to produce quality software.

ECE 533 three credits
CMOS VLSI Design
3 hours lecture
Prerequisite: ECE 413 or equivalent

Expansion of the concepts and design techniques developed in ECE 413, but with heavy emphasis on CMOS-based technology and circuitry. Each student will be required to complete and present at least one project. Some designs may be fabricated.

ECE 534 three credits
Microwave Magnetics and Electronics
3 hours lecture
Prerequisite: ECE 436 or equivalent

A variety of solid state components encountered in microwave circuitry. Both ferrimagnetic and semiconductor components are discussed in detail. The application of ferrimagnetic resonance to the design of isolators and circulators is explained. The design of semiconductor switches and phase shifters, as well as transistor and parametric amplifiers are covered.

ECE 535 three credits
Analog VLSI Design
3 hours lecture
Prerequisite: Graduate standing or permission of instructor

Introduction to the design of analog circuitry using bipolar and CMOS VLSI design techniques. Analog circuits such as operational amplifiers, active filters, phase lock loops and circuits used in neural modeling will be studied. Students will undertake an extensive project.

ECE 541 three credits
Database Systems I
3 hours lecture
Prerequisite: Graduate standing

An introduction to database systems from a functional and architectural point of view. This course provides a basic overview of database systems, applications domains, data models, support services, information processing, database system architectures, open systems concepts, database standards and future trends. Materials covered includes computer representation of information, computer data storage, properties of persistent data, database structuring models (relational, network, object and functional), transaction processing models, concurrency control techniques, database and transaction recovery, security, introduction to a variety of database system architectures, open systems concepts, database standards, and future trends.

ECE 550 three credit
Fundamentals of Physical Oceanography
3 hours lecture
Prerequisites: PHY 114, MTH 212, and permission of instructor

The physical properties and processes of the ocean. Topics include the ocean basin, seawater composition, distributions of temperature and salinity, general circulation, surface and internal waves, and tides.

ECE 552 three credits
Fundamentals of Ocean Engineering
3 hours lecture
Prerequisite: Senior standing in an engineering major or permission of the instructor

Study of selected areas of engineering to provide a basis for intelligent engineering design in the ocean. Topics include ocean forces, basic ship theory, undersea life-support, marine navigation systems and corrosion.

ECE 553 three credits
Ocean Engineering Laboratory
3 hours lecture
Corequisite: ECE 552

Measurements of ocean properties and processes. Topics include navigation, underwater sound, underwater light, and oceanographic, biological and water quality parameters. Experiments performed from the UMass Dartmouth research vessel and in the laboratory. Each student will design and execute an at-sea experiment.

ECE 561 three credits
Computer Systems I
3 hours lecture
Prerequisites: ECE 363 and CIS 111 or CIS 261

Develops a broad working knowledge of computer systems hardware and software including interrupt handling, assembly language, high order language interfaces and communications to the operating system. In addition, various themes in the development of computer architectures will be examined including hardware and software developments such as virtual memories, stacks, general purpose operating systems and hardware-software tradeoffs.

ECE 562 three credits
Computer Systems II
3 hours lecture
Prerequisite: ECE 561

Recent technological advances have made economically feasible the implementations of computer architectures that enhance and support software execution. Such architectures provide direct hardware support for operating systems, data base systems and high-level languages. This course discusses these features including approaches such as tagging, capabilities data flow and object oriented architectures. Case studies are taken from classical systems such as the Burroughs 1700, 6700 machines and Multics, and from recent systems such as the IBM S/38. The course emphasizes a unified conceptual view of the ways in which architectures can support software functions.

ECE 565 three credits
Computer Operating Systems
3 hours lecture
Prerequisite: ECE 561 or permission of instructor

This course will emphasize the structure and design of operating systems. Principles will be discussed in the context of a major case study (the UNIX kernel). Topics include the kernel architecture, file systems, process structure, control, communications, and scheduling, and memory management.

ECE 566 three credits
Microprocessors I
3 hours lecture
Prerequisites: CIS 262 and ECE 363

Representative microprocessor systems currently available are introduced and compared. The course begins with a general discussion of hardware, software, programming and interfacing. This is followed by consideration of various technologies and hardware/software tradeoffs. In conclusion, specific design examples are covered.

ECE 567 three credits
Microprocessors II
3 hours lecture
Prerequisite: ECE 566

Continuation of ECE 566. Emphasis will be on 16 bit processors. Students will use cross assemblers and cross compilers to generate software for 6809, 8086/8088/8087 and 68000 processors. Projects involving A/D converter, DMA operations, etc. will be done on an IBM-PC.

ECE 571 three credits
Statistical Communication Theory
3 hours lecture
Prerequisites: ECE 471 and ECE 521 or equivalent

Review of probability theory and random processes; linear systems with random inputs; matched filter and optimum linear filtering and prediction; modulation theory and systems.

ECE 572 three credits
Signal Detection Theory
3 hours lecture
Prerequisites: ECE 471 and ECE 571 or equivalent

Bayes and Neyman-Pearson tests, composite hypothesis testing; signal theory; detection of known signals in Gaussian noise; detection of signals with random parameters in noise; multiple pulse detection of signals; generalized likelihood ratio test; Bayes and maximum likelihood estimators; comparison of communication systems; space-time processing; application to radar and sonar.

ECE 573 three credits
Pattern Recognition
3 hours lecture
Prerequisites: ECE 471 and ECE 521 or equivalent

Descriptions of patterns, problem formulation, linear and nonlinear classification theories, representation of patterns, feature selection, supervised estimation, unsupervised estimation, nonparametric methods in pattern recognition, cluster and mode-seeking techniques, recursive algorithms using stochastic approximation, sequential pattern recognition, design of computer recognition experiments, linguistic approach to pattern recognition.

ECE 574 three credits
Digital Signal Processing
3 hours lecture
Prerequisite: ECE 471 or ECE 475

Discrete-time signals and systems; the Z-transform; the discrete Fourier transform; network structures; digital filter design techniques; the fast Fourier transform; A/D and D/A conversion and changing sample rates; discrete Hilbert transform; effect of finite register length in digital filters structures; signal processing, homomorphic processing; applications.

ECE 575 three credits
Sonar Signal Processing
3 hours lecture
Prerequisite: ECE 597 or ECE 521 or equivalent

Classical theories in detecting and processing both active and passive signals in noise with special emphasis on the underwater environment and associated techniques in sound navigation ranging (SONAR). Both spatial and temporal processing methods are studied including beamforming, matched filtering, effects of noise and interference, application and utility of frequency agile signals, narrowband and broadband passive techniques, and adaptive algorithms to address the time/space varying interference sources. Applications in underwater detection, classification, localization and communication are also discussed.

ECE 576 three credits
Computer Communications
3 hours lecture
Prerequisite: ECE 471

Graph theory for computer network analysis and design; coding for error control; system elements including terminals, modems, multiplexers and concentrators, and communication processors; digital transmission media; teleprocessing networks and computer network; system modeling and analysis; the reliability and security problems in computer communications.

ECE 577 three credits
Artificial Intelligence
3 hours lecture
Prerequisite: Permission of instructor

State-space representations and search methods; problem-reduction representation and search methods; theorem proving in the predicate calculus; games; computer vision, robotics; natural languages, expert system design using Lisp and Prolog.

ECE 578 three credits
Picture Processing by Computer
3 hours lecture
Prerequisite: ECE 521 or equivalent

The fundamentals of automatic picture processing and scene analysis. Computer-based methods of enhancing, compressing and segmenting digital pictures, as well as representation and description issues in computer vision are discussed. Applications to character recognition, remote sensing, parts inspection and other areas are also examined.

ECE 579 three credits
Geophysical, Radar and Speech Signal Processing
3 hours lecture
Prerequisite: ECE 471 or equivalent

Common mathematical frameworks in the processing of geophysical, radar, and speech signals are introduced, followed by a study of individual source mechanisms and transmission media. Specific digital filtering, deconvolution, spectral analysis and interference or clutter rejection techniques are discussed. Case studies for effective processing of seismic, radar and speech signals are also included.

ECE 580 three credits
Time Series Analysis
3 hours lecture
Prerequisite: ECE 566

The course includes the topics: moving average and autoregressive models, estimation of the mean and autocorrelation, statistical forecasting, spectral analysis and estimation, bivariate processes and linear system identification. Application to electrical engineering is emphasized.

ECE 581 three credits
Mathematics of Systems Analysis
3 hours lecture
Prerequisite: Graduate standing

Elementary exposition of linear algebra and time domain methods and their utility in the analysis and design of linear systems. Linear space, state variables, controllability, observability, assignability, linear state variable feedback design, parametric invariance are included.

ECE 582 three credits
Optimal Control Theory
Prerequisite: ECE 581

The calculus of variation is reviewed and classical optimal control techniques are discussed based on it. Modern control theory is presented including Pontryagin's principal of maximum and Bellman's dynamic programming. Relation to Hamiltonian mechanics is discussed.

ECE 583 three credits
Nonlinear Systems Theory
3 hours lecture
Prerequisite: ECE 581 or equivalent

Techniques for the analysis of nonlinear systems. Topics covered include classification of singular points, the method of isoclines, describing functions, piecewise linear model; second perturbation analysis, stability theory, Lyapunov functions, nonlinear control systems, and an introduction to chaotic systems.

ECE 584 three credits
Introductory Estimation Theory
3 hours lecture
Prerequisites: ECE 521 and ECE 581 or equivalent

Analysis of estimation problems in the time domain via the state variable notation. Filtering, prediction, and smoothing problems are treated, and the connection between the Kalman filtering and the Weiner-Hoph integral equation is presented. Nonlinear estimation problems are also included.

ECE 585 three credits
Numerical Filtering and Smoothing Techniques
3 hours lecture
Prerequisite: Permission of instructor

Numerical techniques involving matrix factorization are developed and used to define estimation algorithms which are computationally stable.

ECE 586 three credits
Inverse Problems
3 hours lecture
Prerequisite: Permission of instructor

Finding the cause function given an effect function is considered an inverse problem. Applications cover some problems of data processing, systems control, and communications. Regularization of ill-posed and ill-behaved problems is treated leading to numerically stable algorithms.

ECE 587 three credits
Fuzzy Sets and Applications
3 hours lecture
Prerequisite: Probability theory

Crisp sets and classical two value logic are reviewed and extended to fuzzy sets and fuzzy logic. The operations of fuzzy union, intersection, and complement are studied and fuzzy relations are developed. Fuzzy measures of belief, plausibility, possibility, and necessity are covered. The application of measures of fuzziness and nonspecificity to the concepts of vagueness and ambiguity are studied. Applications to fuzzy control and other disciplines are studied.

ECE 588 three credits
Stability Theory
3 hours lecture
Prerequisites: ECE 382 and ECE 581 or equivalent

Various types of stability are discussed, with an emphasis on the direct method of Lyapunov. The techniques are applicable to nonlinear and linear time-variant systems and include Popov's criterion, circle criterion and treatment of adaptive systems.

ECE 589 three credits
Computer-Aided Design of Control System
3 hours lecture
Prerequisite: ECE 581 or undergraduate Control Theory

Techniques for analysis and design of control systems from the viewpoint of computer-aided implementation both for classical and modern control methods. Emphasis is placed on reliable and robust methods and avoiding ill-conditioning. All techniques are presented in MATLAB environment.

ECE 590 three credits
Topics in Electrical Engineering
3 hours lecture
Prerequisite: Permission of instructor

Topics of timely interest in Electrical Engineering will be discussed. Content will change from year to year.

ECE 591 three credits
Topics in Electrical Engineering
3 hours lecture
Prerequisite: Permission of instructor

Topics of timely interest in Electrical Engineering will be discussed. Content will change from year to year.

ECE 592 three credits
Principles of Project Engineering
3 hours lecture
Prerequisite: Permission of instructor

The Life-cycle phases of research, development and engineering projects, with emphasis on the methodologies that lead to successful execution of such projects. Included in this analysis is an introduction to the financial and economic aspects of successful project engineering. Principles of software engineering are highlighted throughout to prepare the student for the development of embedded computer systems. In parallel with the formal study of these projects and their execution, an authentic work environment is created through formation of project teams and the assignment of real engineering tasks of contemporary importance. Student teams conduct these projects under the supervision of the instructor, evaluation of the student's program and performance is conducted in a manner similar to that which can be expected in a real environment. Seminars given by industry engineers are also included in the course.

ECE 593 three credits
Quantum Electronics
3 hours lecture
Prerequisites: ECE 336 and PHY 341 or equivalent

General principles of laser systems including media, transmission and resonators. Specific laser types including solid state, gaseous and semiconductor. Modulation, noise and detection of optical radiation. Nonlinear applications such as second harmonic generation and parametric interactions.

ECE 594 three credits
Advanced Digital Signal Processing
3 hours lecture
Prerequisites: ECE 521 and 574 or equivalent

The fundamental concepts of several important advanced topics in digital signal processing including: homomorphic signal processing, adaptive signal processing, short-time Fourier transforms, and two-dimensional signal processing. Applications will be discussed in radar, sonar, speech and image processing.

ECE 595 three credits
Independent Study
Prerequisite: Admission to the course is based on a formal proposal which shall include grading procedures. It must be endorsed by the instructor, the student's advisor, the director of the ECE graduate program, and the department chairperson before the course begins.

Allows study into areas not included in the formal course listings.

ECE 596 three credits
Directed Study
Prerequisite: Permission of the instructor, the director of the ECE graduate program, and the department chairperson.

Allows completion of a numbered course formally in the graduate program listing but not being offered as a scheduled class.

ECE 597 three credits
Underwater Acoustics I
3 hours lecture
Prerequisite: EGR 301

Review of the wave equation and its application to acoustics and boundary value problems. Velocity profiles in the ocean are discussed and ray tracing techniques are developed. Propagation of sound in the sea, transmission losses, boundary effects and the sonar equations are also developed.

ECE 598 three credits
Underwater Acoustics II
3 hours lecture
Prerequisite: ECE 597

A continuation of ECE 597. Normal mode and full field solutions are developed. Reverberation, scattering, and ambient and self noise are discussed. The properties of acoustics antennas are examined.

ECE 609 three credits
Parallel Processing
3 hours lecture
Prerequisite: Graduate standing

Fundamentals of parallel processing and supercomputing. Design and analysis of parallel algorithms for numerical and non-numerical algorithms, detection of data and control dependencies in algorithms, and transformation of sequential algorithms to parallel forms are studied.

ECE 610 three credits
Parallel Computer Architectures
3 hours lecture
Prerequisites: ECE 561, 562, or permission of instructor

A study of the state-of-the-art parallel computer architectures and supercomputers. Topics include: parallel computational models, scalable parallel processors, massively parallel processing (MPP) systems, interconnection networks, and parallel algorithms and their mapping on supercomputers.

ECE 615 three credits
Ocean Optics
3 hours lecture
Prerequisite: ECE 515

Interaction of light within the ocean and at the air-sea interface. The topics studied include hydrooptical characteristics, factors determining the optical properties of ocean water, molecular optics of ocean water, scattering by suspended particles, air-sea interactions and inverse problems.

ECE 624 three credits
Quantum Phenomena for EEs
3 hours lecture
Prerequisite: ECE 524 or ECE 336 or equivalent

Introduces concepts of quantum mechanics and non-equilibrium statistical mechanics relevant to understanding of modern devices. Topics include the wave-particle nature of electrons, scattering, equilibrium and relaxation, steady-state transport of carriers, phonons, hot-electron effects, and electron-photon interaction.

ECE 625 three credits
Carrier Transport in Semiconductors
3 hours lecture
Prerequisite: ECE 624

Transport phenomena in semiconductors. Topics include a review of semi-classical carrier transport, the Boltzmann Transport Equation, limitations of drift-diffusion equations, scattering rates/mechanisms, charge and heat flow, Monte Carlo simulation, high-field transport, ballistic transport, and velocity overshoot.

ECE 631 three credits
Database Systems II
3 hours lecture
Prerequisite: ECE 541 or equivalent

In depth look at database management systems architecture and operations. The focus is on operational aspects of a database system. Topics include; transaction properties, transaction processing, transaction and database recovery, concurrency control, storage systems and application of these concepts within various database systems.

ECE 632 three credits
Advances in Database Systems
3 hours lecture
Prerequisite: ECE 541 or equivalent

In depth look at structural and architectural components of a database management systems. The focus is on structural and design tradeoff aspects of control components of a database system. Topics include; overview of database systems, why study databases, properties of data in a database, properties of transactions, classes of database systems, (real-time, multimedia, secure, fault tolerant heterogeneous, distributed, etc.), and design tradeoffs between control components within a selected class. A team design project will be part of the course.

ECE 655 three credits
Ocean Data Acquisition and Processing Systems
3 hours lecture
Prerequisite: ECE 552

Focuses primarily on modern shipboard and underwater systems for measuring, analyzing and processing oceanographic, acoustic and optical ocean data. Topics include probes, sensors, and signal conditioning. Channel transfer functions, synoptic measurements and inverse problems are examined.

ECE 674 three credits
Time-Frequency Methods for Signal Processing
3 hours lecture
Prerequisite: ECE 574

The analysis and processing of signals by means of time-frequency representations. The course covers many of the prevalent techniques that have been developed over the years for time-frequency signal analysis and addresses the characteristics and properties of time-frequency representations like the Wigner distribution, the smoothed pseudo Wigner distribution, the spectrogram, the Choi-Williams distribution, and the generalized exponential distribution.

ECE 697 three credits
Nonlinear Acoustical Theory
3 hours lecture
Prerequisite: ECE 597

Nonlinear acoustic fields and sources. Topics include nonlinear acoustics of fluids, turbulence and underwater explosions as sources of sound, parametric acoustic arrays, finite-amplitude effects, acoustic cavitation and streaming.

ECE 700 credits variable
Graduate Seminar
Prerequisite: Graduate standing

Electrical Engineering Technology

The objective of the Electrical Engineering Technology program is to produce technologically educated individuals who can understand the current state-of-art and the fundamentals of electrical/electronic systems and processes. Typically, the Engineering Technologist applies established engineering design principles and procedures to manufacturing, maintenance and other technical and industrial operations.

The Electrical Engineering Technology program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering Technology. Students may associate with their chosen profession by joining the Student Chapter of the Institute of Electrical and Electronic Engineers (IEEE) and the Student Chapter of the National Society of Professional Engineers (NSPE).

Faculty and Fields of Interest

Lester W. Cory rehabilitation engineering, programming languages, HF/VHF communications

Robert C. Helgeland (chairperson) marine electronics, solid state electronics

Philip H. Viall microcprocessors, assembly languages

Electrical Engineering Technology Major BS degree

The work done by the Electrical Engineering Technologist requires a practical understanding of engineering methods and principles applied to solving technical problems. To that end the instructional program in EET emphasizes the application of the mathematical and engineering methods and principles, stressing "how" more than "why." The technical science and mathematics content of the curriculum provides the basis for developing analytical skills and for avoiding short-term obsolescence in a rapidly changing profession. The English, humanities and social science content provides skills and insights required to communicate and work effectively with others in sub-ordinate and super-ordinate capacities. Technical electives provide state-of-the-art knowledge required to perform problem solving tasks and routine development tasks in specific technical areas. The laboratory work, which culminates in a senior design project, gives the student not only a learning experience in laboratory procedure and exposure to electrical/electronic equipment, but also an opportunity to learn how to plan work in cooperation with others.

Requirements Semester Credits

		First	Second
First Year			
CHM 101	General Chemistry I	3	
MTH 131	Introductory Mathematics	3	
EET 101	Computer Tools	3	
ENL 101, 102	Critical Writing and Reading I, II	3	3
PHY 103, 104	General Physics Lab I, II	1	1
PHY 107, 108	Basic Physics I, II	3	3
CIS 261	Computer Programming/FORTRAN		3
EET 221	Electric Circuits I		3
EET 251	EET Lab I		1
MTH 105	Technical Calculus I		3
		16	**17**
Second Year			
EET 222	Electric Circuits II	3	
EET 261	Fundamentals of Digital Logic	3	
EET 252, 253	EET Lab II, III	1	1
MET 231, 232	Mechanics I, II	3	3
MTH 106, 203	Technical Calculus II, III	3	3
EET 263	Introduction to Microprocessors		3
EET 212	Electronics I		3
	Humanities/Social Science Electives	3	3
		16	**16**
Third Year			
ENL 266	Technical Communications	3	
EET 341	Electromechanical Energy Conv.	3	
MTH 204	Elementary Differential Equations	3	
EET 311, 312	Electronics II, III	3	3
EET 321, 322	Circuit Analysis & Design I, II	3	3
EET 351, 352	EET Lab IV, V	1	1
EET 332	Transmission Lines and Waves		3
	*Stipulated Elective		3
	Humanities/Social Science Elective		3
		16	**16**
Fourth Year			
EET 472	Applied Communications	3	
EET 451, 452	Design Project I, II	3	3
	Technical Electives	6	6
	Free Elective		3
	Humanities/Social Science Electives	3	3
		15	**15**
	Total credits:		**127**

*
Requires advisor approval:

(a) Science Course
(b) Engineering Course
(c) Business Course
(d) Economics Course

EET 101 three credits
Computer Tools

Personal computer tools which will be needed throughout the student's academic and professional career. Topics covered include DOS/Windows, word processing, spreadsheets, Matlab, and introduction to VMS, UNIX, and Netware.

EET 212 three credits
Electronics I
3 hours lecture
Prerequisite: EET 222

Semiconductor theory, diodes, and bipolar transistors. Equivalent circuits for these devices are developed and used in elementary electronic circuit analysis. Circuit applications of these devices and others, such as SCRs, in power supplies and voltage regulators are discussed. Some homework problems are solved using computer methods.

EET 221 three credits
Electric Circuits I
3 hours lecture

Basic DC circuits, Kirchoff's laws, loop and nodal analysis. Thevinen's and Norton's theorems, magnetic circuits, and introduction to RC and RL transient analysis are also covered.

EET 222 three credits
Electric Circuits II
3 hours lecture
Prerequisite: EET 221

Basic AC circuits, network theorems and sinusoidal steady-state solutions. Principles of resonance and introduction to polyphase system are also covered.

EET 251 one credit
Electrical Technology Laboratory I
3 hours laboratory
Corequisite: EET 221

Theory and techniques of electrical measurements. DC indicating instruments and the operation and use of the oscilloscope are covered. This laboratory will coordinate with the course work of EET 221.

EET 252 one credit
Electrical Technology Laboratory II
3 hours laboratory
Prerequisite: EET 251
Corequisite: EET 222

This laboratory will coordinate with the course work of EET 222. AC circuits and measurements experiments.

EET 253 one credit
Electrical Technology Laboratory III
3 hours laboratory
Prerequisite: EET 252
Corequisites: EET 212

This laboratory will coordinate with the course work in EET 212.

EET 261 three credits
Fundamentals of Digital Logic
3 hours lecture
Prerequisite: MTH 131

A study of digital electronics fundamentals including Boolean algebra, number systems, two's complement, logic gates, and combinational and sequential logic circuits. Examples of SSI and MSI logic circuits, including a study of adders, decoders, multiplexers, and comparators are given. Memory concepts will be introduced.

EET 263 three credits
Introduction to Microprocessors
3 hours lecture
Prerequisite: EET 261

A comprehensive study in microprocessor system operation, programming, hardware design, and applications. The student is guided through fundamental computer concepts, microprocessor architecture, program design, debugging, program documentation, system hardware design, bus timing, computer arithmetic routines, interrupts, input/output interfacing, device driver software, LSI peripheral chips, and advanced systems.

EET 311 three credits
Electronics II
3 hours lecture
Prerequisite: EET 212

Review of diodes and bipolar transistors. Field-effect transistors are introduced. Low-frequency and high-frequency equivalent circuits are developed. Frequency response, multistage amplifiers, and differential amplifier circuits are studied. Operational amplifiers and their applications are discussed. Computer methods are used extensively in the solution of homework problems.

EET 312 three credits
Electronics III
3 hours lecture
Prerequisite: EET 311

Large-signal power amplifiers are discussed at length. Thermal parameters, heat sinks, and their applications are studied. Basic digital electronic circuits such as gates, flip-flops, shift registers, and counters are introduced. Logic families such as TTL and CMOS are presented.

EET 321 three credits
Circuit Analysis and Design I
3 hours lecture
Prerequisites: EET 222, MTH 106

Waveform analysis, time-domain steady-state and transient analysis, Laplace transform methods, transfer functions, frequency response and Bode plots.

EET 322 three credits
Circuit Analysis and Design II
3 hours lecture
Prerequisite: EET 321

Fourier series, Fourier transforms, and their application to circuit analysis. Numerical methods and FFT computer programs. Filter circuits and their design using computer methods.

EET 332 three credits
Transmission Lines and Waves
3 hours lecture
Prerequisites: PHY 108, MTH 203, EET 321

Techniques for the calculation of capacitance, inductance, voltage breakdown, dielectric loss, and skin depth. Wave propagation in free space is discussed and guided propagation via transmission lines is studied in detail. Subjects include standing waves, reflections, SWR, impedance matching, and the Smith Chart. Antenna theory and design are also studied. Gain, beamwidth, radiation resistance, and effective area are explained. Various antenna configurations are discussed and analyzed.

EET 341 three credits
Electromechanical Energy Conversion
3 hours lecture
Prerequisite: EET 222

Electromechanics as applied to energy conversion devices, followed by studies of specific devices such as dynamos and other transducers including transformers. Mathematical models of typical physical devices are discussed.

EET 351 one credit
Electrical Technology Laboratory IV
3 hours laboratory
Prerequisites: EET 253, 261
Corequisite: EET 311

The experiments in this laboratory coordinate with the EET course work in the first semester of the junior year.

EET 352 one credit
Electrical Technology Laboratory V
3 hours laboratory
Prerequisite: EET 351
Corequisites: EET 312, 322, and 332

The experiments in this laboratory coordinate with the EET course work in the second semester of the junior year.

EET 363 three credits
Advanced Microprocessors
3 hours lecture
Prerequisite: EET 263

A study of 16/32 bit microprocessors with emphasis on the MC 68000. The general features of the MC 68000 such as pin functions, addressing modes and instruction sets are covered. Primitive instructions for high level software, exception handling and machine code generation are also covered. The development tools used in the course include the HEX68KECB module.

EET 400 three credits
Electrical Engineering Technology Internship
Prerequisite: Completion of 75 credits in the EET Program

Experiential learning in conjunction with an industrial or governmental agency project under the joint supervision of an outside sponsor and a faculty advisor. To be eligible, a student should have completed 75 credits in the EET Program. A detailed project proposal must be prepared by the student for departmental approval prior to the start of the project. Typically, three credits will be assigned. The learning component must be a significant portion of the total work experience.

EET 403 three credits
Topics in Rehabilitation Engineering
3 hours lecture
Prerequisites: EET 312, 352, 261 (ECE 361)

Classical problems and contemporary solutions in rehabilitation engineering. Opportunities will be presented for interaction with health care professionals and with individuals having disabilities. Each student will complete a paper or a hardware project to benefit a specific case.

EET 413 three credits
Introduction to VLSI Design I
3 hours lecture
Prerequisites: EET 312, 261

An introduction to the design of Very Large Scale Integrated (VLSI) circuits. Several concepts introduced in the Digital Logic Fundamentals course and the Electronics courses will be expanded upon and used to design chips using the design tools available in the Computer Aided Engineering (CAE) laboratory. These chips may be submitted for actual fabrication as part of a student's project. Emphasis will be placed on using the available tools to do CMOS design and testing.

EET 414 three credits
Introduction to VLSI Design II
3 hours lecture
Prerequisite: EET 413 taken semester immediately preceding or permission of instructor

A continuation of EET 413. The course is centered on a one-semester class project in which a chip of moderate complexity is designed and fabricated for testing. Modularity, circuit timing, and design testability criteria are emphasized. VLSI design of finite-state machine will be discussed.

EET 415 three credits
Digital Devices and Systems I
3 hours lecture
Prerequisite: EET 261

Modern integrated logic circuits. Analytical study of gates, using primarily the TTL bipolar logic family. Combinational and sequential circuits. Algorithmic State Machine (ASM) chart used in "top-down" design. MSI and LSI logic circuits.

EET 416 three credits
Digital Devices and Systems II
3 hours lecture
Prerequisite: EET 415

Construction, analysis and operation of the discrete and integrated FET. Study of the basic gate in MOS, CMOS and SOS technology. Configuration and application of MSI circuitry such as Flip Flops, Shift Registers, Scalers, Counters, etc. Examples of LSI circuitry such as fixed and variable format, programmable, and nonprogrammable memory systems.

EET 431 three credits
Microwave Theory and Techniques
3 hours lecture
Prerequisite: EET 332

Guided transmission of electromagnetic waves by means of coaxial and waveguide systems. Transmission line theory and the Smith Chart. The design of cavities, couplers, filters, and attenuators. Microwave generation, detection, and measurements.

EET 432 three credits
Microwave Techniques
3 hours lecture
Prerequisite: EET 431 or ECE 435

Microwave properties of ferrite and semiconductor materials and their applications to circulators, isolators, parametric amplifiers, switches, and phase changers. Klystrons and magnetrons will be described.

EET 443 three credits
Power Systems Analysis I
3 hours lecture
Prerequisites: EET 222; EET 341 desirable

Review of electric power system components (generators, transformers, transmission lines, and loads). Proper modeling of component parts will be studied. Methods of load-flow analysis including computer methods. A first course of a two-semester sequence on electric power system analysis.

EET 444 three credits
Power System Analysis II
3 hours lecture
Prerequisite: EET 443

Continuation of EET 443. The study of symmetrical three-phase faults, use of symmetrical components, and unsymmetrical faults. System protection and system stability will be discussed also. Computer methods will be used throughout the course.

EET 451 three credits
Design Project I
1 hour lecture, 6 hours laboratory
Prerequisites: EET 332, 352
Corequisite: EET 472

Introduces the student to well-structured projects in the laboratory. The course consists of design projects and experiments of one to three weeks duration in the areas of digital electronics, communication networks, and microwaves, and will challenge the student to use the material learned in his or her other courses.

EET 452 three credits
Design Project II
1 hour lecture, 6 hours laboratory
Prerequisite: EET 451

A continuation of EET 451 with more emphasis on self reliance. The course consists of a semester-long comprehensive laboratory design project and will be as closely related to industrial experience as possible.

EET 462 three credits
Audio Engineering Technology
3 hours lecture
Prerequisite: Senior EET or ECE standing

Audio signals and distortion. Recording, amplifying, and speaker systems. An intensive presentation of digital audio signals and compact disc (CD) player technology is included.

EET 472 three credits
Applied Communications
3 hours lecture
Prerequisites: EET 312, 322

The general principles of Electronic Communications at a systems level. Modulation, demodulation, and sampling are discussed. Random signal analysis is presented, and a survey of various digital communication systems is included.

EET 475 three credits
Digital Signal Processing
3 hours lecture
Prerequisite: EET 322

Digital signal processing technology including an introduction to linear systems, analog-to-digital and digital-to-analog converters, discrete-time signals, z-transforms, digital filters, discrete Fourier transforms, fast Fourier transforms, and processor integrated circuits.

EET 495
Independent Study

EET 496
Directed Study

EET 900
Contract Learning

*Up to 6 credits may be assigned for exceptional projects that extend over two semesters.

Mechanical Engineering

The Department of Mechanical Engineering offers majors in mechanical engineering and mechanical engineering technology.

Mechanical engineers are involved in a spectrum of technical activities from the design and manufacture of various products to fundamental research.

Mechanical engineers are concerned with the production, transmission and use of power. They design and develop systems which produce power, such as steam and gas turbines, internal combustion engines, nuclear reactors, jet engines, and rocket motors. They also design and develop devices which consume power in order to accomplish some useful result, such as refrigeration and air conditioning equipment, machine tools, rolling mills, and elevators, to name a few.

The environmental impact of these systems forms an integral part of their analysis and design. Mechanical engineers must cope with stringent standards of air and water quality, noise abatement and thermal pollution.

Graduates find employment in a number of areas, including private industry, government, consulting firms and education. They may be involved in one or more of the following: research, design, development, administration, management, sales or production supervision. Others continue studies in graduate school.

The Mechanical Engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

A student chapter of the American Society of Mechanical Engineers permits the student to initiate professional contacts through a program of technical and social events which introduces the student to practicing engineers from industry and students from other engineering schools.

Faculty and Fields of Interest

David J. Creamer machine design, solid mechanics, computer-aided manufacturing

Ronald DiPippo thermodynamics, power plant design, geothermal energy

Sherif D. El Wakil (chairperson) computer-aided manufacturing, design for manufacturing, materials science

Alex J. Fowler fluid flow in porous media, heat transfer, thermodynamics

John W. Hansberry solid mechanics, control theory, machine design, vibrations

Raymond N. Laoulache thermodynamics, multiphase flow, control systems

Tesfay Meressi robotics, control theory, design

John M. Rice solid mechanics, finite elements, computer-aided drafting, design, and manufacturing

T. K. Roy machine design, solid mechanics, shell dynamics, robotics

Thomas B. C. Shen heat transfer, thermodynamics, fire research

K. Srinagesh manufacturing processes, physical metallurgy, foundry technology

Mechanical Engineering Major

BS degree

Throughout the program, the use of computer work stations is emphasized for the solution of complex problems and for the design and manufacture of components and systems. Hands-on design experiences occur throughout the curriculum, culminating in a senior project solving a real-life engineering program with realistic constraints of time as well as economic, aesthetic, safety, social and environmental implications. The students defend their work in an oral presentation before their class, faculty, guests and an invited panel of judges from local industries.

The first two years of the program include basic courses in the areas of mathematics, chemistry and physics, together with introductory courses in applied science such as mechanics, materials and electrical science. Specialization occurs during the last two years with courses available in the areas of thermodynamics, fluid mechanics, control systems, materials behavior, energy, and mechanical design.

Requirements		Semester Credits		Technical Electives
		First	**Second**	MNE 422
First Year				Energy Conversion
MNE 101	Engineering Design Graphics	3		MNE 423
MTH 111, 112	Analytic Geometry and Calculus I, II	4	4	Refrigeration and Air Conditioning
CHM 151, 152	Principles of Modern Chemistry I, II	3	3	MNE 424
CHM 161, 162	Intro Applied Chemistry I, II	1	1	Geothermal Energy
PHY 113	Physics I		4	MNE 425
ENL 101, 102	Critical Writing and Reading I, II	3	3	Power Plant Design and Engineering
CIS 111	Computer Programming-PASCAL		3	MNE 431
		14	**18**	Fluid Mechanics II
				MNE 432
Second Year				Aircraft and Rocket Propulsion Systems
EGR 231	Materials Science	3		MNE 441
EGR 221	Materials Science Laboratory (biweekly)	1/2		Mechanical Vibrations
MTH 211	Analytic Geometry and Calculus III	4		MNE 442
EGR 241, 242	Engineering Mechanics I, II	3	3	Introduction to Numerical Methods
	Humanities/Social Science Elective	3		MNE 452
PHY 114	Classical Physics II	4		Mechanics of Materials II
MNE 201	Mechanical Engineering Laboratory I		1	MNE 460
MNE 292	Intro to Mechanical Engineering Design		1	Combustion Phenomena
				MNE 462
MNE 252	Mechanics of Materials		3	Experimental Stress Analysis
EGR 232	Engineering Thermodynamics I		3	MNE 463
MTH 212	Differential Equations		3	Kinematic and Dynamic Analysis of Machines
		17 1/2	**14**	MNE 471
Third Year				Physical Metallurgy
EGR 301	Applied Engineering Mathematics	3		MNE 472
MNE 345	Design for Manufacturing	3		Metal Forming Operations
MNE 355	Manufacturing Processes Laboratory	1	1	MNE 473
MNE 381	Design of Machine Elements	3		Powder Metallurgy
ECE 211, 212	Elements of Electrical Engineering I, II	3	3	MNE 475
ECE 251	Electrical Measurement Laboratory I	1		Principles of Foundry Engineering
MNE 305, 306	Mechanical Eng Lab II, III (biweekly)	1/2	1/2	MNE 480
MNE 321	Engineering Thermodynamics II	3		Computer-Aided Engineering
MNE 332	Fluid Mechanics I		3	MNE 481
	Humanities/Social Science Elective		3	Computer-Aided Manufacturing
ENL 266	Technical Communications		3	MNE 482
	MNE technical elective		3	Robotics
		17 1/2	**16 1/2**	MNE 485
Fourth Year				Introduction to the Finite Element Method
MNE 494	Design Project		4	MNE 490
MNE 411	Heat Transfer	3		Special Topics in Mechanical Engineering
	Technical Electives*	3	3	MNE 492
	Humanities/Social Science Electives	3	6	Laser Doppler Anemometry in Fluid Flow
MNE 466	Control Theory	3		CEN 402
MNE 491	Advanced Machine Design	4		Engineering Economy
	Free Elective		3	
		16	**16**	
	Total credits:		**128 1/2**	

*Must be taken from approved list.

Areas of Concentration
Design:
MNE 441, 452, 462, 463, 480, 482, 485
Energy:
MNE 422, 423, 424, 425, 431, 432, 460, 492
Manufacturing:
MNE 472, 473, 481, 482

Students should confer with advisors before selecting technical electives to assure that they meet requirements in engineering science and engineering design. Students who wish to select technical electives from other departments must receive prior approval from the mechanical engineering department.

A proposal for contract learning must be first sponsored by a faculty member and then approved by the full department. A proposal that meets minimum standards shall normally be approved for three free elective credits. An extraordinarily meritorious proposal may be approved for three technical elective credits only if it involves significant creative technical design with a tangible product.

MNE 101 three credits
Engineering Design Graphics
2 hours lecture, 4 hours laboratory

An introductory course (1) to develop an awareness of the history and current status of the profession of engineering; (2) to impart the concepts associated with the design process, including the enhancement of creativity; (3) to develop graphic skills for the communication of ideas from the designer to the fabricator. Computer-aided graphics are emphasized.

MNE 102 three credits
Programming and Computer Usage

Introduction to computer hardware and software. Computer mathematics; curve fitting; charting; spreadsheets. Data base management. Graphical representation; Applications in mechanical engineering.

MNE 201 one credit
Mechanical Engineering Laboratory I
3 hours laboratory weekly
Corequisites: MNE 252, EGR 232

Experiments to supplement Mechanics of Materials I and Engineering Thermodynamics I. Topics such as calorimetry, specific heats, engine performance, strain gauges, tensile and torsion testing are typically covered.

MNE 252 three credits
Mechanics of Materials I
3 hours lecture
Prerequisite: EGR 241

Material behavior and the concepts of equilibrium and compatibility of deformation are combined and initially applied to one-dimensional problems. Torsion of bars is discussed with application to problems of shaft design. Stress in beams of simple and composite shapes is considered as well as shear in beams and combined twisting and bending. Deflections of beams, shafts and structures are discussed using several calculation procedures. Stress and strain are considered in three dimensions with attention to principal directions. Buckling is considered and some attention is paid to plastic action in the various course topics.

MNE 292 one credit
Introduction to Mechanical Engineering Design
1 hour lecture, 2 hours laboratory every week
Corequisites: EGR 242, MNE 252

Mechanical design with emphasis on microcomputers as an aid to analysis and optimization. Attention is primarily paid to the solid mechanical aspects of the subject. Stress, flexibility and minimum weight considerations are addressed through introduction to the finite element method of analysis. Proper form for technical reports and calculations is discussed.

MNE 305 one-half credit
Mechanical Engineering Laboratory II
3 hours biweekly
Corequisite: MNE 321

Extensive investigations into various commonly-encountered devices in areas of interest to the mechanical engineer. These include engines, turbines, water cooling towers, conduction, convection, radiation and refrigeration.

MNE 306 one-half credit
Mechanical Engineering Laboratory III
3 hours laboratory biweekly
Corequisite: MNE 332

Several experiments demonstrating the concepts in the course MNE 332 Fluid Mechanics I. These include: jet impact, Venturi meter, flow under a sluice gate, friction losses in tubes, introduction to data acquisition, and calibration of valves using computer control.

MNE 321 three credits
Engineering Thermodynamics II
3 hours lecture
Prerequisite: EGR 232

Mechanical engineering applications of ideal and real compressors; gas turbine power systems; a variety of air-standard cycles including the Brayton, Ericsson, Stirling, Otto, Diesel and Wankel cycles; and several vapor cycles including the Carnot, Rankine, modified Rankine, and binary cycles. An introduction is given to vapor-compression refrigeration and heat pumps. Thermochemistry and combustion are discussed with emphasis on application of the First and Second laws to chemical reactions. Chemical equilibria in homogenous gas systems are studied.

MNE 332 three credits
Fluid Mechanics I
3 hours lecture
Prerequisites: EGR 232, 301

Understanding the basic conservation equations in integral and differential form. The applications are concerned primarily with steady flows of inviscid, incompressible fluids. A brief discussion of similitude and modeling precedes the introduction to viscous flows. Flows in pipe systems with friction influences and including turbines and pumps are studied using the extended Bernoulli equations. The elements of incompressible potential flow are studied using real and complex potential functions.

MNE 345 three credits
Design for Manufacturing
3 hours lecture
Prerequisites: EGR 231, MNE 252

Discussion and comparison of manufacturing processes for economy of production, modifications to proposed designs to suit existing equipment are covered. Material selection to suit production and service requirements is covered along with the economics of automation and inventory control.

MNE 355 one credit
Manufacturing Processes Laboratory
3 hours laboratory weekly
Corequisite: MNE 345

Experiments in casting, forming, and cutting operations using conventional and modern manufacturing techniques. Welding and other bonding operations are included as time permits.

MNE 381 three credits
Design of Machine Elements
3 hours lecture
Prerequisites: MNE 252, 292

Comprehensive survey of the analytical design methods that are valuable to mechanical engineers. Some of the areas covered are: stress analysis, fatigue, stress concentration, design of curved beams, selection of standardized elements, and lubrication. The objective of the course is to enable the student to handle design problems with confidence and assurance.

MNE 400 variable credits
Engineering Internship
Prerequisite: Senior standing

Experiential learning in conjunction with an industrial or governmental agency project under the joint supervision of an outside sponsor and a faculty advisor. To be eligible, a student should have completed the junior-year courses. A detailed project proposal must be prepared by the student for departmental approval prior to the start of the project. Typically, three credits will be assigned. Based upon the determination of the advisor and sponsor, the learning component shall be at least 100 hours out of the total work hours. Up to six credits may be assigned for exceptional projects that extend over two semesters. MNE 400 may be used to satisfy one 3-credit technical elective course.

MNE 411 three credits
Heat Transfer
3 hours lecture
Prerequisites: MNE 321, 332, EGR 301

Principles of heat conduction, forced and free convection and thermal radiation, and their application to various engineering problems. Mass transfer and its analogy to heat transfer phenomena are sketched. Special problems, such as boiling and condensation, heat transfer in high speed flow, and fire propagation are introduced. Mathematical analysis motivated by physical reasoning is emphasized.

MNE 422 three credits
Energy Conversion
3 hours lecture
Prerequisites: MNE 321, 332, ECE 212, consent of instructor

An introduction to various energy resources, followed by a description of the use of chemical potential energy, nuclear energy and solar energy, the analysis and design criteria for various energy conversion devices, such as generators, transformers, motors, power distribution systems, solar cells, and so on. Understanding of working principles and essential design conditions is emphasized.

MNE 423 three credits
Refrigeration and Air Conditioning
3 hours lecture
Prerequisites: MNE 321, consent of instructor

Principles of refrigeration are presented with applications to vapor-compression, steam-jet and absorption systems, together with heat pumps. Psychrometrics and the physiological factors involved in air-conditioning are discussed along with the analysis of various processes. In particular the use and analysis of water cooling towers is emphasized.

MNE 424 three credits
Geothermal Energy
3 hours lecture
Prerequisites: MNE 321; MNE 332, concurrently; consent of instructor

A brief review of relevant topics from thermodynamics, fluid mechanics and heat transfer. Elements of geology pertinent to geothermal energy are covered. The various types of geothermal resource are discussed. Technical systems of geothermal utilization are covered. Major emphasis is placed on the energy conversion systems which produce electrical power from geothermal resources. Dry steam, single and dual flash, binary, total flow, and hybrid systems are analyzed in detail. The environmental impact of geothermal energy usage and the economic factors associated with it are also discussed.

MNE 425 three credits
Power Plant Design and Engineering
3 hours lecture
Prerequisites: MNE 321, consent of instructor

Theory as a basis for plant design and equipment selection. Practical design calculations including heat balance are carried out. Fossil- and nuclear-fueled plants as well as gas turbine and hydroelectric plants are studied. The economics of alternatives is discussed.

MNE 431 three credits
Fluid Mechanics II
3 hours lecture
Prerequisites: MNE 332, consent of instructor

Basic equations of fluid mechanics, applied to quasi one-dimensional, compressible flows, including: isentropic flows with area changes, Fanno and Rayleigh flows, and normal shock waves. Two-dimensional flow fields are studied using Prandtl-Meyer expansion and oblique shock waves. The basic concepts are applied to selected topics such as: aircraft and rocket propulsion, combustion chambers in jets and rockets, wind tunnels and shock tubes, supersonic diffusers, and flow about supersonic airfoils.

MNE 432 three credits
Aircraft and Rocket Propulsion Systems
3 hours lecture
Prerequisites: MNE 321, 431, consent of instructor

The mechanics and thermodynamics of airborne propulsion systems. Thrust equations and efficiencies are derived from first principles and applied to a variety of systems. Airbreathing engines that are discussed include ramjets, turbojets, turbofans, and turboprops. The aero-thermodynamics of inlets and nozzles is presented. The course concludes with an introduction to rocket propulsion, including the identification and classification of types of rocket systems, fundamental definitions and derivations, and rocket dynamics.

MNE 441 three credits
Mechanical Vibrations
3 hours lecture
Prerequisites: EGR 242, 301, consent of instructor

Discussion of generalized coordinates and the Lagrangian method of determining a system's equations of motion. Normal modes and normal coordinates are introduced and the method of matrix iteration is used to find natural frequencies and modes. Free vibration of continuous systems is considered and techniques for finding natural frequencies are developed. Forced and transient responses of one degree of freedom systems are treated extensively, and forced response of multi-degree of freedom systems is discussed. Electrical analogies, use of the analog computer, and modeling of actual physical systems are discussed.

MNE 442 three credits
Introduction to Numerical Methods
3 hours lecture
Prerequisites: EGR 301, consent of instructor

Numerical methods most useful to the engineer. They include the use of spreadsheets for engineering calculations as well as solutions of nonlinear algebraic equations, ordinary and partial differential equations. The methods are performed on personal computers using a structured language, such as True Basic. The use of computer graphics is emphasized.

MNE 452 three credits
Mechanics of Materials II
3 hours lecture
Prerequisites: MNE 252, EGR 301, consent of instructor

After reviewing the development of the flexure formula, the stress equation is derived for unsymmetrical bending. Curved beams loaded in the plane of curvature are analyzed as are beams with combined axial and lateral loadings. The general equation for beams on elastic foundations and its applications are studied. Stresses and deflections due to dynamic loads are examined. The basic equations of elasticity are developed and two-dimensional problems analyzed using Airy's stress function. Solutions are compared to strength of materials results. Energy methods are discussed. The Lagrange plate equation is derived and plates fabricated from modern composite materials are discussed.

MNE 460 three credits
Combustion Phenomena
3 hours lecture
Prerequisites: MNE 321, 332; MNE 411, concurrently; consent of instructor

Detailed description and analysis of the phenomenon of combustion. Mechanics of fire propagation are covered. Applications are drawn from power generating systems and combustion engines.

MNE 462 three credits
Experimental Stress Analysis
3 hours lecture
Prerequisites: MNE 252, consent of instructor

The course is divided into two major parts. The first part of the course deals with theory and practice of photo-elastic methods applied to classical experimental stress analysis of models and are mod-ified for use in photoelastic coatings. Three-dimensional problems are studied and solved by the use of the digital com-puter. Emphasis is on the interpretation, limitations and designing by photo-elasticity. The second part of the course presents the theory and application of mechanical and electrical strain gauges, and brittle coatings. Installation, instrumentation and circuitry of gauge set-ups or transducer use in experimental stress analysis are discussed.

MNE 463 three credits
Kinematic and Dynamic Analysis of Machines
3 hours lecture
Prerequisites: EGR 242, 301, consent of instructor

Introduction to the various types of mechanisms, their application and methods of operations. Four-bar linkages are discussed in detail with emphasis on the velocity and acceleration analysis of slider-crank, quick-return, scotch-yoke and intermittent motion mechanisms, Vector methodology is used extensively, although graphical and complex variable methods are also employed. Different types of cams and followers are studied and profiles determined satisfying given tie-displacement requirements. Both standard and non-standard gears are treated with regard to their construction, performance, usage and geometrical features. Various types of gear trains are analyzed. Force and torque analysis of various machine parts is performed for both static and dynamic conditions. Gyro-scopic devices are treated. The course concludes with the study of balance of machinery under static and dynamic conditions.

MNE 466 three credits
Control Theory
3 hours lecture
Prerequisites: ECE 212, 252; EGR 301

Introduction to sensors used widely in control systems. Computer control of machines and processes are discussed along with modeling of control systems elements and linearization method and its applicability. Control systems are analyzed using discrete signals in the time domain. Operational transfer function, backward shift operator, and differencing techniques in the time domain are discussed for linear and nonlinear systems. Algorithms for computer control and their stability are developed. Statistical methods are introduced. Design in the time domain and frequency domain are emphasized. Applications of microprocessors are included.

MNE 471 three credits
Physical Metallurgy
3 hours lecture
Prerequisites: EGR 231, consent of instructor

The structure of metals and alloys and their determination by x-ray diffraction. Structural imperfections and their influence on mechanical properties are considered. The election theory of metal introduced. Binary phase diagrams are studied on the basis of thermodynamic principles. Emphasis is placed on the iron-carbon system. Subjects such as creep and fatigue are also considered.

MNE 472 three credits
Metal Forming Operations
3 hours lecture
Prerequisites: EGR 231, consent of instructor

Plastic deformation in terms of dislocation theory. Various methods of the failure of metals are discussed and the field of plastic working and shaping is studied. Emphasis is on metallurgical interpretation and the influence of structure on mechanical properties. Operations such as forging, rolling, extrusion, and rod, wire and tube drawing are presented in some detail.

MNE 473 three credits
Powder Metallurgy
3 hours lecture
Prerequisites: EGR 231, consent of instructor

Characterization and production of powder. Measuring techniques and bulk properties. Powder compaction methods. Behavior of powders during compaction and green properties. Sintering. Material transport and transformations during sintering. Sintering atmospheres and furnaces. Properties of sintered materials. Engineering properties and product design. Applications.

MNE 475 three credits
Principles of Foundry Engineering
3 hours lecture
Prerequisites: EGR 231, consent of instructor

Principles relative to the following aspects of manufacturing metal castings: nature of cast metals; solidification of castings; need and design of risers; flow of metals and gating systems; molding materials and processes; design of castings and patterns; metal melting and refining in foundries: refractories, furnaces, reactions, inoculants.

MNE 476 three credits
Manufacturing Quality Control
Prerequisite: EGR 301

Principles and procedures necessary to control processes and quality of manufactured products. Topics include: product quality, quality assurance, destructive and non-destructive tests, statistical methods in quality control, acceptance sampling, rectifying inspection, sensors, automated inspection, control charts, total quality control, quality circle, quality philosophy of Deming, Taguchi, and others.

MNE 480 three credits
Computer-Aided Engineering
3 hours lecture
Prerequisites: EGR 301, CIS 111

The fundamental concepts of computer-aided design, analysis and manufacturing. The topics include interactive computer graphics 2D and 3D CAD systems, CAD/CAM hardware and software, computer-aided drafting, computer modeling, finite-element analysis, numerical methods, and numerical controls. Emphasis will be placed on current state-of-the-art technology, the integration of CAD, CAE and CAM systems and future trends. The student will also be introduced to the mathematics of computer graphics. Classroom lectures will be supplemented by laboratory demonstration of computer-aided drafting, 3D modeling, interactive finite-element analysis.

MNE 481 three credits
Computer-Aided Manufacturing
3 hours lecture
Prerequisites: MNE 345, 355, consent of instructor

Scope, principles and various applications of computer-aided manufacturing. This involves the use of computers in monitoring and controlling of machine tools and manufacturing systems. The concepts of NC, CNC, DNC, computer-assisted part programming, group technology, computer-aided process planning, FMS and FMC will be discussed.

MNE 482 three credits
Robotics
3 hours lecture, 1 hour laboratory
Prerequisites: Senior standing, consent of instructor

Introduction to the various aspects of the mechanics of robotics, its classifications and terminologies involved. Direct and inverse kinematics of a robot manipulator are treated in detail with the application of homogeneous and Denavit-Hartenberg transformation techniques. Dynamics, control and programming of a robot manipulator are discussed with associated laboratory work.

MNE 485 three credits
Introduction to the Finite Element Method
3 hours lecture
Prerequisites: MNE 252, EGR 301, consent of instructor

Principles of the finite element method will be developed for solid mechanics. Some fluid and heat flow problems will also be covered. Topics include: solution of matrix equations, variational principles, interpolation functions, and modeling of beam, plate and shell structures.

MNE 490 three credits
Special Topics in Mechanical Engineering
3 hours lecture
Prerequisite: consent of instructor

Visiting professors or members of the faculty present current topics of interest in their areas of expertise.

MNE 491 four credits
Advanced Machine Design
3 hours lecture, 2 hours laboratory
Prerequisite: Senior standing

Emphasizes the design of machines. The complete design process is carried out, from the conceptual stage through consideration of alternative designs to the final creation of the device. Extensive use of the computer is made to facilitate the process. Emphasis is placed on selecting efficient manufacturing processes to produce the required parts for the system.

MNE 492 three credits
Laser Doppler Anemometry in Fluid Flow
2 hours lecture, 3 hours laboratory
Prerequisites: MNE 332, consent of instructor

Introduction to laser doppler anemometry (LDA) in fluid flow. The following topics are considered: principles of LDA; doppler effect; fringe mode LDA; seeding; frequency shifting; digital data acquisition and signal processing; time correlation; spectra; experiments on flow over a cylinder and an air foil, on turbulent jets, pipe flow and wave motion.

MNE 494 four credits
Mechanical Engineering Design Projects
2 hours lecture, 6 hours laboratory
Prerequisite: MNE 491

Application of knowledge gained in various courses to the synthesis, analysis, and design of a system in a particular field of interest selected by student. The course culminates with oral presentations by each student before a panel of judges.

MNE 495 three credits
Independent Study

A student works under the direction of a faculty member and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project.

MNE 496 three credits
Directed Study
Lecture/laboratory arranged as required.
Prerequisite: Senior standing, consent of instructor

MNE 900 three credits
Contract Learning

Mechanical Engineering Technology*

Mechanical Engineering Technology shares with other areas of Engineering Technology the goal of providing support to engineering activities through the application of scientific and engineering knowledge and methods. Students should consult the section above that gives a general description of the field of engineering technology and its career opportunities.

Mechanical Engineering Technology encompasses the methods that are employed as well as the practice that is applied in the design, development, manufacture, operation and installation of machinery, boilers, structures, transportation equipment, heating and air-conditioning equipment as well as other equipment which involves the interaction of mechanical, electrical, fluid, and thermodynamic forces.

Mechanical technologists not only translate the ideas of the engineers and scientists into reality but also bring to the technological team a knowledge of practical production techniques. In industry, the mechanical technologist is frequently found in a supervisory position over technicians and drafting staff. Employment opportunities are with engineering design organizations, public utilities, and corporations dealing with manufacturing and production.

Students are encouraged to join and to participate in professional engineering organizations and are offered early contact with practical problems through field trips to industrial facilities.

The Mechanical Engineering Technology curriculum is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

A student chapter of the American Society of Mechanical Engineers allows students to begin their contacts with the professional society of practicing engineers and technologists. A national honor society Tau Alpha PI (Delta Delta Chapter) is available to Mechanical Engineering Technology students who qualify.

*Effective Fall 1993, Freshman admission to this program is suspended.

Mechanical Engineering Technology Major

BS degree

In addition to fundamental mechanical technology courses, the curriculum contains courses in mathematics, science, humanities, and social science in order to prepare the student to assume a productive role in society upon graduation. During the first year, students develop the skill to produce production drawings by taking two courses in graphics. The concentration in the second and third years is on basic mechanical engineering subjects and the fourth year is highlighted by courses in machine design and CAD/CAM, culminating in a mechanical technology design project.

Requirements		Semester Credits	
		First	**Second**
First Year			
MTH 131	Introductory Mathematics	3	
CHM 101	General Chemistry I	3	
MET 101, 102	Graphics I, II	3	3
PHY 107, 108	Basic Physics I, II	3	3
PHY 103, 104	Basic Physics Laboratory I, II	1	1
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 105	Technical Calculus I	3	
CIS 111	Computer Programming-PASCAL		3
		19	**13**
Second Year			
MTH 106, 203	Technical Calculus II, III	3	3
MET 217, 218	Manufacturing Laboratory I, II	1	1
MET 219, 220	Manufacturing Processes I, II	3	3
MET 231, 232	Mechanics I, II	3	3
	Humanities/Social Science Electives	6	3
MET 222	Elements of Materials Science		3
MET 223	Elements of Materials Science Laboratory		1
		16	**17**
Third Year			
MTH 204	Differential Equations	3	
MET 302	Kinematic Analysis of Machines	3	
EET 221, 222	Electric Circuits I, II	3	3
EET 251, 252	Electrical Technology Laboratory I, II	1	1
MET 306, 307	Mechanics of Materials I, II	3	3
MET 321, 322	Thermodynamics I, II	3	3
MET 342, 343	Mechanical Technology Laboratory I, II	1	1
ENL 266	Technical Communications		3
MET 332	Fluid Mechanics		3
		17	**17**
Fourth Year			
MET 412	Instrumentation and Control Circuits	3	
MET 422	Machine Design I	3	
MET 432	Dynamic Analysis of Machines	3	
	Humanities/Social Science Electives	3	3
	Technical Electives*	3	6
MET 424	Mechanical Technology Design Project		3
MET 480	CAD/CAM for Technology		3
		15	**15**
	Total Credits:		**129**

*Must be taken from approved list.

Technical Electives

MET 403
Tool Engineering
MET 405
Foundry Engineering
MET 411
Heat Transfer
MET 414
Heat Exchanger Design
MET 423
Machine Design II
MET 431
Internal Combustion Engines
MET 433
Fluid Mechanics II
MET 445
Photoelasticity with Laser Applications
MET 462
Introduction to Quality Management
MET 484
Computer-Aided Manufacturing
Technology
CEN 402
Engineering Economy
CIS 454
Computer Graphics (Requires instructor's approval)

Any Mechanical Engineering technical elective course may be used as a technical elective for the technology program. Students must obtain prior approval to register for an MNE elective from the instructor of the course except for the following courses, for which no prior approval is necessary:

MNE 471
Physical Metallurgy
MNE 472
Metal Forming Operations
MNE 473
Powder Metallurgy

Students who wish to select technical electives from other departments must receive prior approval from the Mechanical Engineering Department.

A proposal for contract learning must be first sponsored by a faculty member and then approved by the full department.

see next page

continued from previous page

A proposal that meets minimum standards shall normally be approved for three free elective credits only. An extraordinarily meritorious proposal may be approved for three technical elective credits only if it involves significant creative technical design with a tangible product.

MET 101 three credits
Graphics I
2 hours lecture, 4 hours laboratory

Topics such as orthographic projection, multiview drawing, sectional and auxiliary views, dimensioning, scaling, and current standards. Drawings will be created and executed with both the computer and the traditional method.

MET 102 three credits
Graphics II
2 hours lecture, 4 hours laboratory
Prerequisite: MET 101

Descriptive geometry and engineering computations. Problems involving space distances, point line and plane relationships will be covered. Other topics include graphical mathematics, empirical equations, graphical integration, and computer applications.

MET 200 three credits
Application of Metal Cutting Theory
3 hours lecture
Prerequisite: consent of instructor

Concepts of metal cutting. A liberal use of numerical examples dramatized in an experimental setting are used to illustrate practical applications. Major topics covered include: economic considerations; the metal cutting process; tool materials; mechanics of the cutting process; tool wear; optimization techniques; and evaluation of production costs. May not be taken for credit by MET and MNE majors.

MET 217 one credit
Manufacturing Laboratory I
3 hours laboratory

Machines and operations of manufacturing. Supplements MET 219.

MET 218 one credit
Manufacturing Laboratory II
1 hour lecture, 2 hours laboratory
Prerequisite: MET 217

Product design, process engineering, and production of a simple machine in the laboratory. Supplements MET 220.

MET 219 three credits
Manufacturing Processes I
3 hours lecture

Materials, processes and equipment used in manufacturing to convert ideas into products, machines and structures economically. Topics include turning, shaping, planing, milling, broaching, grinding, forming, powder metallurgy, welding, and casting.

MET 220 three credits
Manufacturing Processes II
3 hours lecture
Prerequisite: MET 219

Continuation of MET 219. Topics include non-traditional machining, surface cleaning, surface finishing, heat treatment, numerical control, CAM, quality control, manufacturing management.

MET 222 three credits
Elements of Materials Science
3 hours lecture

Engineering requirements of materials including atomic arrangements and atomic bonding, structural imperfections; metallic, organic and ceramic phases and their properties. Phase relationships, solid state reactions and modifications of properties through structural changes and stability of materials in service environment are also covered.

MET 223 one credit
Elements of Materials Science Lab
3 hours laboratory
Corequisite: MET 222

Properties of materials in experiments such as determination of grain size (microscopy), precipitation hardening, heat treatment of steel, and thermal analysis.

MET 231 three credits
Mechanics I
3 hours lecture
Prerequisite: PHY 107

Statics of particles and rigid bodies in two and three dimensions; resultants and equilibrium of forces; centroids and centers of gravity; forces in beams and cables; analysis of structures; friction; moments of inertia of areas and masses. The vector method for the solution of problems is used where applicable.

MET 232 three credits
Mechanics II
3 hours lecture
Prerequisite: MET 231

Kinematics and kinetics of particles and rigid bodies; rectilinear and curvilinear motion, translation, rotation, plane motion; force, mass and acceleration, work-energy, impulse and momentum. Three-dimensional problems are considered; methods of vector algebra in solution of problems where applicable are studied.

MET 302 three credits
Kinematic Analysis of Machines
2 hours lecture, 3 hours laboratory
Prerequisite: MET 232

Analysis of the relative motion of machine parts to determine displacement, velocity and acceleration. Topics covered include equations of motion, instant centers of velocity, velocity and acceleration graphs and polygons, cams, rolling contact, gearing, flexible connectors, gear trains, translations, screws and dimensional synthesis.

MET 306, 307 three credits each
Mechanics of Materials I, II
3 hours lecture each
Prerequisites: MET 231 for MET 306; MET 306 for MET 307

A study of the stresses and strains that occur due to tensile, compression and shearing forces. Shear and bending moment diagrams, investigation and design of beams and deflection of beams are included. Statically indeterminant members, eccentrically applied load, torsion, and column action are also studied.

MET 321, 322 three credits each
Thermodynamics I, II
3 hours lecture each
Prerequisites: MTH 203 for MET 321; MET 321 for MET 322

Properties of substances, First and Second laws of thermodynamics, ideal gases, liquids and vapors, heat exchangers, steam turbines, and the reversed cycle are studied.

MET 332 three credits
Fluid Mechanics I
3 hours lecture
Prerequisite: MET 321

Hydrostatics and hydrodynamics; ideal viscous fluids; compressible and incompressible fluids. Flow of real fluids in pipes and around immersed objects, boundary layer, lift and drag, flow measurement are also studied.

MET 342, 343 one credit each
Mechanical Technology Laboratory I, II
3 hours laboratory each

Basic definitions, physical concepts and testing procedures. The first portion is devoted to experiments in strength of materials and general techniques of mechanical testing of materials. The second portion concentrates on measurements in heat/power and fluid flow. Emphasis is placed on the proper presentation and interpretation of data.

MET 403 three credits
Tool Engineering
3 hours lecture
Prerequisite: Senior standing

An understanding of the fundamental force, energy and wear characteristics involved in tool operations as related to the economics of the manufacturing processes. Topics covered include: characteristics of material behavior, metal cutting and forming, and manufacturing economics. Design and analysis of the following tools are considered: single-point tools, axial-feed rotary tools; press-working tools including piercing, blanking, compound and progressive dies, and work-holding devices.

MET 405 three credits
Foundry Engineering
3 hours lecture
Prerequisites: MET 219, 222

Various aspects of foundry operation. Topics include molding, core, casting design, pattern design, solidification, feeding systems, metal melting, cleaning, inspection, mechanization, economics, and management.

MET 411 three credits
Heat Transfer
3 hours lecture
Prerequisite: MET 322

Steady-state conduction, free and forced convection, radiant heat transmission, and the design of heat transfer equipment.

MET 412 three credits
Instrumentation and Control Circuits
3 hours lecture
Prerequisite: EET 222

Analysis and design of operational circuitry and measurement of non-electrical quantities; transducers are also studied.

MET 414 three credits
Heat Exchanger Design
3 hours lecture
Prerequisite: MET 411

Examination of heat transfer devices. The following topics are presented: heat exchanger performance analysis and design procedure; heat transfer surface analysis; importance of various design parameters and optimization processes; geometrical configurations of various heat exchangers; specific applications of various heat exchangers with temperature dependent fluid properties; flow nonuniformity on the performance of heat exchanger; heat exchanger tests.

MET 422 three credits
Machine Design I
3 hours lecture
Prerequisite: MET 307

A survey of methods, simplified and sophisticated, in mechanical equipment design. Presentation of subject matter, whenever possible, features the distinction between the levels of sophistication appropriate for a given design situation. In assignments, the student is encouraged to make design decisions in preparation for the experiences that are likely to be encountered in the design project course, and as engineers upon graduation. Some of the areas covered are: design procedures, simple stress analysis, varying stresses, stress concentration, combined stresses, design of fasteners and springs.

MET 423 three credits
Machine Design II
3 hours lecture
Prerequisite: MET 422

A continuation of Machine Design I. Areas covered include lubrication, sliding and rolling contact bearings, shaft design; gear design, flexible connectors and clutches.

MET 424 three credits
Mechanical Technology Design Project
1 hour lecture, 6 hours laboratory
Prerequisite: MET 422

Special design project chosen by student with approval of instructor. Investigation and creativity are encouraged in the design process. A final report with recommendations and specifications will be submitted at the conclusion of the course. It is expected that hardware will be produced as the final product of the course. Oral presentations are made by each student.

MET 431 three credits
Internal Combustion Engines
3 hours lecture
Prerequisite: MET 322

A study of the internal combustion engine processes, including the air standard cycle analysis; engine cycles; deviation of the real engine from the ideal engine; detonation, carburetion; fuel injection, combustion chamber and cylinder head design; engine lubrication; cooling and performance.

MET 432 three credits
Dynamic Analysis of Machines
2 hours lecture, 3 hours laboratory
Prerequisite: MET 232

Principles of dynamics of machines. Topic covered include: static forces in machines, inertia forces in machines, fly-wheel balancing, rotating and reciprocating masses, gyroscopic effects, critical speeds of shafts and the determination of natural frequencies and mode shapes of multidegree of freedom systems. A weekly laboratory session involves experiments dealing with balancing, resonance, analog computer simulation, sound measurements and digital computer techniques.

MET 433 three credits
Fluid Mechanics II
3 hours lecture
Prerequisite: MET 332

Torque in rotating machines, system curves, specific speed and similarity laws. Selection of turbines to suit various conditions of operation including small hydroelectric plants. Centrifugal and axial flow pumps, pump selection, cavitation and special problems of pump installation. The course concludes with compressible flow in fans and blowers.

MET 445 three credits
Photoelasticity with Laser Applications
3 hours lecture
Prerequisite: MET 307

Photoelasticity and laser applications in engineering. The first part of the course is concerned with polarized light and its use in stress analysis. The student will be introduced to the techniques and instruments used in photoelastic analysis of stressed models. Current use of industrial photoelasticity will be emphasized. Laser applications in engineering are studied in the second half of the course. A review of ray optics, refraction, reflection and lenses serve as an introduction to laser light properties followed by simple demonstrations with the laser. The course concludes with an introduction to holography and current industrial applications.

MET 462 three credits
Introduction to Quality Management
3 hours lecture
Prerequisite: Senior standing

Quality management concepts and techniques. The tasks of quality management are explained and discussed. Examples derived from actual experience will be presented.

MET 480 three credits
CAD/CAM For Technology
3 hours lecture
Prerequisite: MET 422

Covers the current CAD/CAM technology with the use of an interactive graphics system. Topics include 2D and 3D CAD systems, multiview and pictorial drawings, wireframe, solid modeling, shading and highlighting. Some manufacturing topics will be discussed.

MET 484 three credits
Computer-Aided Manufacturing Technology
2 hours lecture, 3 hours laboratory
Prerequisites: MET 218, 220

Techniques and limitations in the programming of numerical control machine tools using both manual as well as computer-assisted programming methods. Laboratory experience with CNC equipment and with computer-assisted part programming systems is provided to supplement the lecture.

MET 495 three credits
Independent Study

A student works under the direction of a faculty member and pursues a specific line of study in an area of interest to the student. The work may deal with subject matter not normally available in the curriculum, or may involve a design project.

MET 496 three credits
Directed Study
Lecture/laboratory arranged as required.
Prerequisite: Senior standing

MET 900 three credits
Contract Learning

College of Nursing

Professional nurses provide health care services across the life span and in varied environments. Nursing is concerned with promoting, maintaining and restoring health. Nursing is committed to the goal of promoting an optimal level of functioning for all individuals, families and groups; thereby contributing to the health of the nation.

Professional nurses determine health status of individuals, families, and populations and make clinical decisions regarding the appropriate action to be taken. They collaborate and cooperate with other members of the health team such as the physician, social worker, physical therapist, pharmacist, and occupational therapist. Nursing plays an essential role in advocating high-quality affordable health care for all members of society and in shaping health policy.

Professional nursing requires a broad background of knowledge in arts, sciences and nursing, including clinical and cognitive skills of analysis, critical thinking, therapeutic intervention, and communication. The American Nurses' Association (representing nurses throughout the United States) thus recommends the baccalaureate degree as the basic educational foundation for professional nursing practice.

Mission and Goals

The mission of the UMass Dartmouth College of Nursing is to provide visionary leadership to advance the practice of nursing in a dynamic environment. The college is committed to generate collaborative and consultative relationships with professional colleagues and consumers to enhance the health of the region and beyond. The college actualizes this mission by providing excellent nursing education, meaningful service, and challenging scholarship opportunities to diverse populations.

The College fulfills its mission by pursuit of the following goals:

1.
To provide full-time and part-time undergraduate study leading to a Bachelor of Science degree in nursing as a foundation for professional practice.

2.
To offer full-time and part-time graduate programs leading to a Master of Science degree in nursing for advanced practice.

3.
To prepare leaders in the delivery of cost-effective innovative health care.

4.
To foster creative and critical thinking that advances the practice of nursing.

5.
To integrate concepts of health within the fabric of the University and the region.

6.
To create an environment for nursing scholarship and research within the university and region.

7.
To expand partnerships to improve the health status of the population.

8.
To facilitate the exploration of political, social, and economic factors influencing the present and future of health care.

Programs

The College of Nursing at University of Massachusetts Dartmouth is approved by the Massachusetts Board of Registration in Nursing, and the baccalaureate and graduate programs are accredited by the National League for Nursing.

The College of Nursing offers the only baccalaureate and graduate degree programs in southeastern Massachusetts. Students are admitted to one of two baccalaureate programs: Students with no prior nursing education, and Licensed Practical Nurses, are admitted to the basic program. The second program, a flexible-access track for RNs, provides the opportunity for registered nurses who are graduates of associate degree and/or diploma schools to complete requirements for the bachelor's degree in nursing.

The College of Nursing offers the Masters of Science Degree (MS) for Advanced Practice Nursing.

Three clinical options with multiple tracks are available.

1. Adult Health
    A. Nurse Practitioner
    B. Advanced Practice
    C. Management

2. Community Health
    A. Advanced Health
    B. Management

3. Gerontological Nurse Practitioner

For details of graduate program admission requirements and curriculum, please refer to the graduate catalog.

Faculty and Fields of Interest

Community Nursing

Ora De Jesus geriatric nurse practitioner

Ann Marie Hedquist nutrition

Janet Kenty maternal-child health nursing

Jean Maher community health nursing

Carol Mailloux maternity nursing clinical specialist

Katherine Meyer community health nursing

Sonja Stone Peterson psychiatric/mental health nursing

Patricia Wing Piessens community health nursing

Joan C. Pisarczyk (chairperson) community health nursing

Judith L. Rizzi maternal-child health nursing (on leave, director of University Advising)

Institutional Nursing

Ellen Christian maternal-child health

Phyllis Currier adult health

Mary Ann Dillon (chairperson) pediatric nursing

Nancy M. Dluhy adult health

Shirley B. Dufresne pediatric nursing

Kerry H. Fater adult health

Lorraine Fisher medical-surgical nursing

Leslie C. Frost pediatric and adult health

Natalie Lafleur adult health

Jane McCoul adult health

Eileen S. O'Neill adult health

Elisabeth A. Pennington adult health (dean of the college)

Kari B. Sgourakas geriatric and adult health

Paula K. Sheehan community and adult health

Bethany H. Sykes adult health

1.
The minimum passing grade for all courses except the two electives is "C-."
2.
Students may repeat a course only once, only as space is available, with the consent of the department chairperson and the student's advisor. A second failure (grade below C-) in the same course will result in disenrollment from the College of Nursing.
3.
At the end of each program year, the student must have an overall 2.0 cumulative grade point average. At the end of the sophomore year and for subsequent program years, the student must also have a cumulative average of 2.0 in the nursing major. Failure to meet these criteria will result in academic probation.
4.
After the completion of three semesters, students with a GPA of less than 2.0 in nursing major courses will be placed on academic probation. All students placed on academic probation must meet with their academic advisors and an individualized program plan will be developed and filed in the Dean's office. If at the completion of two subsequent semesters students do not have an overall GPA of 2.0 in the nursing major, they will be subject to academic disqualification from the nursing major.
5.
The following number of credits must have been successfully completed at the end of each program year:

End of	*Credits Completed*
Freshman Year	30
Sophomore Year	62
Junior Year	92
Senior Year	122

6.
A student who earns less than "C-" in 12 credits of required nursing courses will be disqualified from the nursing major.
7.
Students have a right to appeal grades. Please refer to the grade appeal policy in the academic regulations section of the catalog.
8.
Enrollment in each required NUR course can only be approved on completion of the NUR prerequisite to that course. Within a given academic year, the student may not have completed all non-nursing prerequisites for Spring semester courses. However, before the student can progress to the required NUR course for the next program year, both nursing and non-nursing prerequisites must have been completed. Early registration for a required *NUR* course does not alter these prerequisites for progression.
9.
Theory and lab/clinical components of a nursing course must be taken simultaneously, and both components must be passed for successful completion of the course. The theory grade is submitted to the Registrar as the final course grade and is recorded on the transcript for both course components.
10.
Status and eligibility for progression in undergraduate nursing programs are determined on the basis of an annual review conducted in June in the office of the dean. Each student receives formal written notification of status based upon the annual review.
11.
Selection of students eligible for progression may be limited by the availability of faculty and/or clinical placements. In the event that the number of eligible students exceeds available resources, students will be selected on the basis of academic standing.
12.
Students are responsible for being certified for cardiopulmonary resuscitation (CPR) prior to the beginning of each academic year in which they enroll in clinical courses. A copy of the certification must be on file in the Dean's office.
13.
Generic students must purchase student liability insurance through the university bursar's office prior to each academic year in which they enroll in clinical courses. RN students must submit a copy of current professional liability insurance to the dean's office prior to each academic year in which they enroll in clinical courses.
14.
Students are responsible to provide their own transportation to clinical agencies.
15.
Students are responsible to have a complete physical examination and appropriate immunizations during the summer preceding each academic year in which they enroll in clinical courses. The written reports must be on file in the university health office prior to the student's receiving a clinical assignment.
16.
Students will not be allowed to proceed in a clinical course without evidence of CPR certification, liability insurance, a complete physical examination, and appropriate immunizations.
17.
Any exceptions to the above academic policies will be considered by the dean only on recommendation of the student's academic advisor.

Nursing BS degree

The College of Nursing offers two undergraduate programs, each of which leads to the degree of Bachelor of Science.

The undergraduate curriculum in both programs emphasizes critical thinking, clinical decision making, therapeutic interventions, and communication skills.

The American Nurses Association Code of Ethics and Professional Standards of Practice for basic practices guides all clinical learning activities.

The baccalaureate graduate of the UMass Dartmouth College of Nursing curriculum

- understands and exhibits the attributes of an educated, healthy, informed citizen;
- implements the concept of professional responsibility and accountability for self and colleagues as a basis for delivery of health care;
- synthesizes theoretical and empirical knowledge from the humanities, the physical and behavioral sciences and nursing as a theoretical base for assisting client systems to achieve optimal level of functioning;
- understands the research process and applies research findings to nursing practice;
- provides nursing care utilizing the nursing process: assessing, goal-setting, planning, implementing and evaluating the results of nursing intervention for individuals, families and communities;
- participates and collaborates in or manages the delivery of nursing care to the well and to the acutely, chronically and terminally ill, at any age or stage of development, irrespective of environment or client system level; and
- participates in identifying and effecting needed change to improve delivery of health care to all client system levels as a result of accurate, reliable interpretation of valid data.

Basic Baccalaureate Nursing

Studies in the sciences and liberal arts provide the base required to integrate a conceptual approach to the study of nursing that begins in the sophomore year.

In the sophomore year, students are taught to interact with individuals using successive phases of the nursing process. They acquire skills in observation and communication necessary to assess an individual's needs, set measurable and realistic goals of nursing care, and devise a plan of care to attain the goals. Students acquire the basic nursing skills to implement the care plan. They evaluate the outcome of the nursing care plan in accordance with the goals previously set.

In the junior year, the scope of the students' experiences broadens to include family groups and populations at risk. Students develop skills in caring for acutely ill adults, childbearing and childrearing families in the hospital and community, as well as populations at risk in communities. The family as a unit of care, as well as populations at risk in communities, become the foci for the nursing process.

In the senior year, the students learn to interact with persons at all levels of the hospital and long-term care structures, and with individuals in social and welfare agencies that impact the distribution of health care. The complexity of nursing care required by clients increases and students develop skills in managing complex health needs. At the completion of the nursing program, students will have the necessary skills to mobilize health care resources for the improvement of nursing care.

Freshman Admission

Students are admitted to the basic baccalaureate nursing program through the University Office of Admissions. Applicants to the Nursing Program, in addition to fulfilling the requirements for all University students, must have had a secondary school program including at least three units of mathematics and two laboratory courses of natural sciences. The three units of mathematics must include two units of algebra.

Placement Exam—Math

Freshman students admitted to the College of Nursing must take the math placement examination during orientation. The results of that examination may require students to receive tutoring or additional instruction.

Admission by Transfer

All students admitted to UMass Dartmouth by transfer after having completed some course work at other colleges must meet the same entrance requirements as those who apply as freshmen.

Credits earned in another college, for which grades meet the academic policy in effect for the class to which the student is admitted, may be accepted as transfer credits after evaluation of official transcripts. Science credits earned more than seven years prior to formal admission into the University cannot be transferred. The required science courses must then be repeated or verified by examination. All applicants for transfer admission whose transcripts contain course work in the biological sciences which is difficult to evaluate may write tests offered by the Department of Biology and, if successful, will be excused from the courses in Anatomy & Physiology and Microbiology and be granted the corresponding credits. In addition, credits may be earned by successfully writing the appropriate CLEP examinations open to all university students.

Course of Study
Basic Baccalaureate Nursing

Health Policies

Students admitted to the nursing program are expected to have a complete physical examination and the appropriate immunizations during the summer preceding their sophomore, junior, and senior year clinical courses.

Students must also be certified in CPR. Details of these requirements are outlined in the College of Nursing Student Handbook.

Typical Program Plan

The basic nursing program is eight semesters long and leads to the Bachelor of Science degree.

Students may study full-time or part-time or follow a five-year curriculum plan rather than the traditional four-year plan.

Generally students must complete one program level before progressing to the next level, because courses build on previous knowledge.

In the junior and senior year, there are two options for sequence of courses. Detailed information on those options is available from the academic advisors at the time of early registration for spring semester junior year.

Exception to progression policies or prerequisites can only be made by the Dean on recommendation of the faculty advisor.

Freshman year

During the Freshman year the student must complete the following course requirements for progression to the Sophomore year:

	Credits
ENL 101,102 Critical Writing and Reading	6
Humanities (Must include one Philosophy course; students may select courses in English, History, Art History, Music Appreciation, and Modern Language to fulfill the Humanities requirement)	6
Social Sciences Psychology or Sociology	6
Natural Sciences CHM 101,102 General Chemistry	6
BIO 154 Fundamentals of Biology	3
NUR 105 Nutrition	3
Total	**30**

Students must have completed 30 credits by the end of the Freshman year.

Sophomore year

In the Sophomore year students begin to develop skills in nursing care. The student must complete the following course requirements for progression to the Junior year.

	Credits
Natural Sciences	
BIO 221, 223; 222, 224 Anatomy and Physiology	8
BIO 252 Medical Microbiology	4
Social Science	
Any social science	3
Humanities	3
Nursing	
NUR 204 Nursing as a Health Profession	2
NUR 240, 241 Health Assessment through the Life Span	3
NUR 290, 291 Nursing Care of Persons with Alterations in OLF	6
NUR 303 Selected Mechanisms of Disease and Related Pharmacology	3
Total	**32**
Cumulative Total	**62**

Junior year

In the Junior year students gain nursing skill in caring for hospitalized adults and childbearing and child-rearing families. Students must complete the following course requirements for progression to the Senior year.

	Credits
Social Science	
Any social science	3
Nursing	
NUR 304 Mechanisms of Disease and Related Pharmacology	3
NUR 314 Fundamentals of Nursing Research	3
NUR 320, 321 Nursing Care of Hospitalized Adults	9
NUR 330, 331 Concepts of Family Care	3
NUR 334, 335 Nursing Care of Beginning Families	4
NUR 336, 337 Nursing Care of Children	5
Total	**30**
Cumulative Total	**92**

Senior year

In the Senior year students care for persons with complex health problems in a variety of settings.

	Credits
Electives	6
Nursing	
NUR 420, 421 Psychiatric Mental Health Nursing	6
NUR 430, 431 Community Nursing	6
NUR 408 Contemporary Issues in Nursing	2
NUR 440, 441 Nursing Management in Long-Term Care	3
NUR 450, 451 Nursing Management in Acute Care	7
Total	**30**

Total Credits: 122

Transfer Credits

This program is designed to complement the structure and requirements of the basic professional program described previously through building on previous nursing education at the technical level. It allows part-time enrollment and creative clinical experiences. Every effort is made to schedule nursing courses in patterns which facilitate accommodation with the work and personal obligations of the typical RN student.

Courses are offered at the main campus and at the Huannis site.

Admission
Applicants to the RN program apply for admission as transfer students through the University Admissions Office. Fall matriculation in this program requires a student to have an associate's degree in nursing or hospital diploma. A current Massachusetts RN license is also required. To be considered, applicants are not required to have met these requirements at the time of application but must be able to meet them before the first semester of enrollment.

Articulation agreement with area community colleges
Faculty of Bristol, Cape Cod and Massasoit Community Colleges and UMass Dartmouth nursing faculty have established the comparability of courses in UMass Dartmouth and the three associate degree nursing programs. Individuals who received the associate degree in nursing from one of these three community colleges after 1984 are granted 30 nursing credits by direct transfer of equivalent courses.

RN Track Residency Requirement
RN track nursing students have a 45-credit residency requirement.

Nursing Transfer Credits
All RNs are able to transfer a maximum of 30 nursing credits as the equivalent of 30 of the 68 NUR credits required in the major for graduation. These 30 credits must have been transferred prior to enrollment in the first required clinical nursing sequence, NUR 305, 315.

Nursing Transfer Credits by Challenge Examination
Nurses who were prepared for the RN licensing examination in hospital diploma schools of nursing, or in an associate degree program **other** than Bristol, Cape Cod or Massasoit Community Colleges, or who graduated from one of the three area community colleges prior to 1984, receive the 30 nursing credits only after performing successfully on the following five (5) tests offered by the American College Testing Proficiency Examination Program (ACT PEP):

#427 Commonalities - A
#478 Commonalities - B
#457 Maternal-Child Nursing
#503 Psychiatric/Mental Health Nursing
#554 Adult Nursing

Non-Nursing Transfer Credits
RN students are allowed to transfer credits for liberal arts, science, and humanities courses taken at a regionally-accredited community or junior college. RNs may transfer all but 45 credits.

Non-Nursing Transfer Credits by Challenge Examination
The following required courses may be challenged by UMass Dartmouth teacher-made exams, and successful performance will result in awarding of equivalent UMass Dartmouth credits: Anatomy and Physiology, Medical Microbiology, Human Nutrition (NUR 105), and Selected Mechanisms of Disease and Related Pharmacology (NUR 303, 304).

Science credits
Science courses taken in any college or university, including UMass Dartmouth, can be accepted in transfer only if those credits are no more than seven years old at the time the student is admitted to Nursing at UMass Dartmouth.

Academic Requirements for the RN Baccalaureate Student
University academic regulations and those described for all nursing students also apply to the Baccalaureate Program for the RN. A current Massachusetts RN license is required for admission to the RN program and must be on file at the beginning of any semester in which the student is enrolled in a clinical nursing course. Liability insurance, CPR certification, immunization, and health status report are also required.

Academic Advisement for RN Students

Individual RNs have highly unique backgrounds, academic records and needs. Academic advisement is critical to a successful academic experience for the student. Systematic advisement can only be provided once the RN student has applied and been accepted (matriculated) as a UMass Dartmouth nursing student. RNs are encouraged to seek information early in their planning to return to college for the baccalaureate degree. To assist in that planning, the following advisors are available during the academic year:

Professor Anne Marie Hedquist
Director, RN Program
Office: Dion, 201C
(508) 999-8194

During the summer months (June - August and vacation periods), information can be obtained from the office of the Dean, (508) 999-8586.

For information about Testing, contact:
Joseph Oliver
Division of Continuing Studies
(508) 999-8039
Monday and Wednesday 5-6:00 pm
Friday 5-6 pm.

Course of Study The RN Track

Summary of Requirements

Non-nursing credits	54
Transfer or ACT/PEP	30
UMass Dartmouth required Nursing credits	38
Total Credits for Graduation	122

Non-Nursing Requirements

The following 39 credits are to be completed prior to registration for the first clinical course.

English	6
Chemistry	6
Anatomy and Physiology	8
Microbiology	4
Social Sciences	12
Humanities (Philosophy)	3
Sub total	**39**

The following 15 credits may be completed any time prior to graduation:

Biology	3
Humanities electives	6
Free electives	6
Sub total	**15**
Total	**54**

Nursing Requirements–38 credits earned at UMass Dartmouth:

NUR 105 Human Nutrition	3
NUR 303, 304 Selected Mechanisms of Disease and Related Pharmacology	6
NUR 305, 315** Foundations of Professional Nursing	5
NUR 307 Communication for Health Professionals	3
NUR 314 Fundamentals of Nursing Research	3
NUR 330, 331** Concepts of Family Care	3
NUR 430, 431** Community Nursing	6
NUR 408 Contemporary Issues in Nursing	2
NUR 440, 441** Nursing Management in the Long-Term Care System	3
NUR 450, 451** Nursing Management in Acute Care	4
Total	**38**

** These courses include clinical experience.

NUR 105 three credits
Human Nutrition

The principles of human nutrition. Main classifications of nutrients will be covered with emphasis on their role in health maintenance. Factors which affect the nutritional status of individuals, including stage in the life cycle, will also be introduced along with current nutritional problems in the U.S. May fulfill elective credits for non-nursing majors.

NUR 204 two credits
Nursing as a Health Profession: Theoretical and Conceptual Basis of Practice

The role of professional nursing in the health care delivery system. The historical, socioeconomic and political context of nursing will be discussed together with the theoretical basis and content of nursing practice.

NUR 240, 241 three credits total
Health Assessment Through the Life Span
Corequisites: NUR 105, BIO 221, 223

Systematic assessment as the first step of the nursing process. Emphasis is on assessment of healthy persons at various stages of growth and development across the life span.

NUR 290, 291 six credits total
Nursing Care of Persons with Alterations in Optimal Level of Functioning
Prerequisites: NUR 204, 240, 241, BIO 252
Corequisite: NUR 303

This theory/clinical laboratory course focuses on application of the nursing process through implementation, in support of the individual adult client with selected alterations affecting optimal level of function (nursing diagnoses). Emphasis is on the acquisition of basic skills for use in appropriate intervention with selected nursing diagnoses.

NUR 303, 304 six credits total
Selected Mechanisms of Disease and Related Pharmacology I, II
Prerequisites or Corequisites: BIO 221, 223, BIO 222, 224, 252

These two courses center on psychophysiological and pharmacological aspects that apply to all nursing practice. Placement: NUR 303 second semester sophomore year. NUR 304 first semester junior year (successful completion of NUR 303 required).

NUR 305, 315 five credits total
Foundations of Professional Nursing
Prerequisite: Approval of RN advisor

For RNs only. The focus is the same as NUR 204 and NUR 240.

NUR 307 three credits
Communication for Health Professionals
Required for RN students

For students in professional health care programs who seek improved understanding and additional skills in a variety of oral communication methods. The emphasis is on a process approach to communication which relates the experiences and life patterns of the communicant to both personal and professional communication settings.

NUR 314 three credits
Fundamentals of Nursing Research
Prerequisite: Junior standing

Introduces the student to research as it relates to nursing practice and consequent improvement in health care. Content includes research design, methods of data collection and exploration of analytical procedures for interpretation of data. Emphasis is placed upon the use of clinical nursing research findings.

NUR 320, 321 nine credits total
Nursing Care of Hospitalized Adults
Prerequisite: Junior standing
Corequisites: NUR 304, 314

This theory/clinical laboratory course will focus on the application of nursing process to the hospitalized adult client experiencing multiple stressors related to exacerbation of chronic illness and to acute temporary illness with medical and surgical treatment. Emphasis is placed on nursing interventions appropriate to multiple nursing diagnoses.

NUR 330, 331 three credits total
Concepts of Family Care
Prerequisites: Junior standing (basic program); NUR 305, 315 (RNs)

This theory/clinical lab course introduces the student to application of nursing process to the family. Students will draw from a variety of theories and conceptual frameworks to guide the gathering and interpretation of assessment data. Emphasis is placed on assessment and nursing interventions to support or strengthen optimal level of functioning (OLF) for families across the life cycle.

NUR 334, 335 four credits total
Nursing Care of Beginning Families
Prerequisites: Junior standing and NUR 320, 321
Corequisites: NUR 330, 331

This theory/clinical lab course focuses on the nursing care required by the childbearing and childrearing family as they adapt to developmental and situational stressors. The student applies the nursing process to the care of parents, children and families in collaboration with other members of the health team. Clinical experience occurs in a variety of community and institutional settings.

NUR 336, 337 five credits total
Nursing Care of Children
Prerequisites: Junior standing and NUR 320, 321
Corequisites: NUR 330, 331

This theory/clinical lab course focuses on the nursing care of children from infancy through adolescence and their families within a developmental framework, identifying ways to support the child's adaptation to developmental or situational stress. Emphasis is on the responses of children and their families to health maintenance measures, illness, injury and hospitalization.

NUR 408 two credits
Contemporary Issues in Nursing
Prerequisite: Senior standing

Expands the student's understanding of the way in which historical, socioeconomic and political forces have influenced both the nursing profession and the nursing professional, and of ways in which an understanding of those forces can help nurses to shape the future of nursing. Emphasis is placed on the identification of strategies for confronting and dealing with issues in nursing.

NUR 420, 421 six credits total
Psychiatric Mental Health Nursing
Prerequisite: Junior standing and NUR 320, 321

This theory/clinical lab course introduces the student to selected nursing and other theories of psychiatric and mental health nursing as the basis for application of nursing process to individuals with alterations in mental health. The goal of nursing with the client population is to promote optimal mental health of individuals and small groups within the context of the family and community. Emphasis will be on the evaluation of client outcomes attributable to care provided by nursing and other members of the health team.

NUR 430, 431 six credits total
Community Nursing
Prerequisites: Junior standing, NUR 320, 321 (basic program); NUR 305, 315 (RN)
Corequisites: NUR 330, 331

This theory/clinical lab course introduces the student to the community and aggregate populations as the client, and examines the role of the community health nurse as a facilitator of change in communities and populations. Principles of epidemiology, demography, environmental sciences and political organizations are synthesized with nursing concepts and principles to provide the basis for community nursing practice. Using the community process, stressors on and adaptations of communities and aggregates within communities are assessed, and theory based nursing care plans for populations are developed. Emphasis will be placed on implementation and evaluation of interventions designed to promote health of populations at risk by maximizing the population's self care potential.

NUR 440, 441 three credits total
Nursing Management in the Long-Term Care System
Prerequisites: Senior standing (basic program); NUR 305, 315 (RN)
Corequisites: NUR 450, 451 (basic program); none (RN)

In this theory/clinical lab course the management role of the professional nurse in the nursing care of the older adult will be examined. Clinical practice occurs in a skilled nursing home with opportunity for interaction and referral to, from, and within the long-term care system. Analysis of the long-term care system regulatory processes as they affect client outcomes, will also provide a basis for evaluation and for the development of creative nursing strategies. Emphasis will be placed on the application of current nursing knowledge and research in the practice setting.

NUR 450, 451 seven credits total (generic program); four credits total (RN program)
Nursing Management in Acute Care
Prerequisites: Senior standing (generic); NUR 305, 315 (RN)
Corequisites: NUR 440, 441 (generic); none (RN)

In this theory/clinical lab course the student will focus on theoretical concepts and current research related to unstable, acutely ill clients and their family who exhibit multiple nursing diagnoses in the acute care environment. The social, political, economic, technologic factors which influence client, family, nurse and other provider decision making will be explored in both lecture and clinical settings. Emphasis will be on the evaluation of client outcomes attributable to nursing care provided.

NUR 495
Independent Study

NUR 496
Directed Study

NUR 900
Contract Learning

Graduate Courses in Nursing

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

NUR 500 three credits
Theory Building in Nursing

Examination of (a) components of theories, various activities of theory development and theoretical/conceptual analysis, and (b) the evolution and status of theory development in nursing. Particular emphasis will be placed on the relationship of theory-research-practice in nursing knowledge development.

NUR 511 three credits
Research Methodology in Nursing

Introduces steps in the research process. Both quantitative and qualitative approaches to generating and testing nursing knowledge and the associated philosophies of each approach are examined. Students will learn how to present, critique, and appropriately revise all facets of their own and other research proposals. On completion of the seminar, each student will have an approved research proposal ready for execution.

NUR 515 three credits
Managing Organizational Resources

The use of financial and human resources to fulfill the function of nursing in a health agency. Coalition building, negotiation, and conflict resolution skills will be developed to facilitate roles in the bureaucratic environment. Alternate approaches to leadership styles, management skills, utilization of personnel, interpersonal negotiations, budget management and the nurse leader in the organizational structure will be explored.

NUR 520 three credits
Health Care Systems

The nature of the health care system. The focus will be on the history, development, financing, and regulation of the health care system. Selected mechanisms for change such as policy formation, cost analysis, rationing, accreditation, and quality assurance programs will be examined.

NUR 530 three credits
Leadership/Staff Development

Role development, role prescriptions, and the actual mechanisms by which the nurse leader promotes staff-development. Leadership role prescriptions will be analyzed particularly in the area of facilitator. Concepts of adult learning and curriculum design will be utilized in examining the types of staff development, the relationship between staff learning and organizational goals and evaluation criteria.

NUR 538 two credits
Theories of Health Promotion and Education

Methods to promote health and to educate individuals, families, and groups about health. Research in health behavior and education are explored. Each student will plan a health education or health promotion project and will write a grant to seek funding for the project.

NUR 540 three credits
Biostatistics and Epidemiology

The basic principles and methods of biostatistics and epidemiology and their applicability in the field of public health nursing. Student will learn the basic skills needed to interpret the literature relevant to public health practitioners.

NUR 541 two credits theory; one credit practicum
Case Management in the Health Care of Families

Using theories of family development and interaction to develop a conceptual base for assessment of family health needs. Students will be expected to develop/or critically examine the defining characteristics of a family-based nursing diagnosis. Emphasis will be placed on nursing interventions for families in crises due to family dysfunction or the occurrence of HIV infection, chronic illness, or social pathology. Case management as a strategy for meeting family health needs will be utilized in a clinical setting.

NUR 550 three credits
Pathophysiological Bases for Advanced Nursing Practice

The interrelationship of human systems and the effect of illness on the individual as a whole. Students examine prototypic concepts and patterns related to clinical physiology using current texts and research literature. The pathophysiology of various body processes such as oxygenation, perfusion, digestion, elimination and defense are considered. The dynamics of stress, ischemia, edema, and pain are presented. Students analyze physiological problems in-depth as they relate to specific clients.

NUR 551 two credits theory, one-two credits practicum
Nursing Standards for Management in Acute Care Nursing

The individual as the unit of analysis. Selected phenomena related to individuals within a nursing unit will be examined using theoretical and research-based knowledge. Several theoretical perspectives for understanding individuals will be explored. The nurse leader's role will be discussed in relation to the development and analysis of phenomena-specific standards.

NUR 552 one credit theory, two credits lab/practicum
Advanced Assessment for Primary Care

Establishing a foundation for assessment in primary care through idactic, laboratory modules, and practicum experiences. The emphasis is on health history interviewing, basic physical examination using four modalities, and beginning skill development in differential diagnosis. The course is restricted to the adult including emphasis on gender, racially diverse and aging populations.

NUR 553 three credits
Clinical Pharmacology for Ambulatory Care

Pharmacological agents used in the prevention, diagnosis, and treatment of human disease and injury in the adult. The focus is on the basis for the clinical use of drug therapy. Characterization, evaluation and comparison of drugs form the framework for this course. Classes of drugs will be critically evaluated in terms of desired effects and degree of tolerable undesired effects. Clinical pharmacological concerns related to aging, drug interactions, and legalities will be addressed.

NUR 556 one credit theory, three credits practicum
Introduction to Primary Care

Role development of the Adult Nurse Practitioner with emphasis on clinical assessment skills and beginning- level mastery of differential diagnosis, primary management, and prevention. The practice emphasis will be on the use of theories, research, and nursing perspectives appropriate to common acute illnesses seen in primary care settings.

NUR 562 two credits practicum
Advanced Assessment: Comprehensive Assessment of Older Adults

Provides the student with practice opportunity to develop skill in multidimensional comprehensive assessment of a diverse population of older adults. This practicum correlates with content presented in NUR 552, Advanced Assessment for Primary Care. The student will build on previously acquired didactic and laboratory instruction in determining the health and functional status of older adults, and the identification of health and developmental problems. Students will practice under the supervision of a GNP in the discrimination of normative and pathologic aging and indicate the need for follow-up and/or referral to other health care professionals.

NUR 563 two credits theory, three credits practicum
Health Care Delivery to Older Adults

The interrelationships of the aging process, psycho-social stressors and life cycle events, chronic illness, and acute illness. The practicum allows for the development of necessary skills to assist the older adult and family caregiver in promotion, maintenance, and restoration of health. Advanced assessment is stressed as the foundation of clinical decision making. Examination of common health problems of older adults is explored in the context of family and community resources. Emphasis is on analysis of a variety of health care delivery systems and the deployment of resources to meet needs of a diverse population of older adults and families.

NUR 635 two credits
Diagnostic Reasoning In Advanced Nursing Practice

Current theoretical and empirical knowledge relative to critical thinking and clinical decision making. Research guided by decision theory, information processing theory and prospect theory will be considered. Several informatic approaches such as expert systems and decision analysis will be examined. Ethical considerations will be explored. Strategies to improve diagnostic reasoning will be discussed and students will analyze their own clinical judgments throughout the course.

NUR 640 three credits
Community Assessment

Theories of health, nursing, community, and community organization at the population level. Students utilize the theory and principles learned in Biostatistics and Epidemiology to complete a community assessment and identify community health problems. This course will analyze the community's health status and adequacy of resources within socio-cultural, political, legal and ethical frameworks. The role of the nurse as an active participant in community health analysis and diagnosis will be explored.

NUR 641 three credits practicum
Community Health Practicum II

A synthesis of theories basic to population-centered community nursing. In this clinically-based course, students in mid-level management will be assigned to selected sub-populations within a given community. A systematic theoretical analysis of problem identification, solution development, and program evaluation will be emphasized. Weekly seminars will analyze the theoretical rationales basic to aggregate-level nursing practice. Students in advanced practice are placed in community settings such as schools, work sties, and home care agencies where they apply principles of public health practice. Case management of HIV-infected populations in each of these settings is addressed.

NUR 643 three credits practicum
Clinical Practicum III

The student will seek a community placement in an official state or local board of health or in a setting that provides services to underserved populations. Students in mid-level management will work with a preceptor who is developing a statewide program or is coordinating the work of several organizations to develop a community-wide program that addresses a local health problem. For students in advanced practice, the focus of this clinically-based course will be on issues related to health planning and program development specific to community settings. Students will have the opportunity to develop and apply leadership skills in selected community health agencies.

NUR 647 three credits
Social Pathologies/The New Morbidities
Prerequisite NUR 541

The prevalence and severity of public health problems or social morbidities. Survey instruments that assess high risk health behaviors in selected populations are examined. Public health strategies designed to reduce the new social morbidities are reviewed.

NUR 648 three credits
Strategies For The Health of Selected Populations

The health needs of selected populations, especially HIV infected populations, in schools, the workplace, or home care agencies. Delivery of health care is evaluated, and innovative methods to meet health care needs are developed.

NUR 649 three credits
Concepts of Community Health Planning

Methods of organizing the community to develop health care programs for the underserved. Theories of community organization and methods for working across organizations to develop coalitions will be explored. The emphasis of the theoretical analysis will be the development of health programs that will address the public health problems of the region. The legislative and regulatory branches of the government will be closely examined to understand their part in assessing problems planning, implementation and evaluation of health programs.

NUR 654 two credits theory, three credits practicum
Advanced Nursing Management of Illness-Related Phenomena

The negotiated management of illness-related phenomena occurring along a continuum. Relevant theoretical foundations, expanded clinical knowledge, and complex nursing interventions are explored and further synthesizes into client-based theories and measurable outcome criteria. The practicum focuses on the application of theoretical knowledge and clinical skills within the selected clinical focus. Emphasis is placed on issues related to continuum of care.

NUR 656 three credits theory, three credits practicum
Role Synthesis: Adult Health

The synthesis of advanced knowledge and skills in the management of the adult client. Theoretical knowledge includes examination of issues related to professional practice, client care, health policy, practice models, demonstration projects, research utilization and role socialization. Emphasis is placed on clinical decision-making, management of care across the continuum, and evaluation of outcome criteria. The practicum fosters application of this knowledge in projects designed specific to the selected track.

NUR 658 two credits theory, four credits practicum
Role Synthesis: Adult Nurse Practitioner

The historical, socio-economic, political, and professional constraints and opportunities influencing the nurse practitioner role. Leadership strategies that support the development and negotiation of this role in the health care system are explored. Policies related to legal aspects of the role are analyzed. Transition to the role is enhanced by further examination of decision-making in primary and continuing care in both the theoretical and practicum component.

NUR 664 two credits theory, four credits practicum
Advanced Gerontological Nursing Concepts in Health Promotion, Maintenance, and Restoration

The synthesis of knowledge in the advanced practice role through the diagnosis, treatment, and management of acute and chronic health problems common in a diverse population of older adults. Emphasis is on the application of advanced practice nursing theory and research. Students function in the advanced practice role within a multidisciplinary health care team. A variety of clinical practice sites will be utilized to assist the student in the nursing assessment and management of pathophysiological alteration that impact function in older adults

NUR 665 three credits
Leadership in Nursing

The study of applied role theory, multiple dimensions of accountability and concepts of change theory as it relates to leadership. The effect of socioeconomic and political trends will be integrated into the study of systems across the continuum of health care. The course will focus on commonalties and variations in the strengths, limitations and the potential for change within the acute care, long-term care and community health organization. Models of nursing practice will be analyzed to assess the facility for excellence in nursing process and nursing practice standards. A team faculty approach will provide the multi-dimensional scope necessary for the development of health management across the continuum of care.

NUR 666 two credits
Advanced Pharmacology in Gerontological Nursing

Independent and interdependent clinical decision-making in the diagnosis and treatment of common health problems of older adults in a variety of settings. Pharmacological variables specifically related to common aging changes and to pathological conditions are reinforced and pharmacokinetic and pharmacodynamic principles are emphasized in relation to vulnerabilities of older adults of various ethnic and racial groups. Advanced pharmacology related to the treatment of health alterations, prescription writing, legal and ethical ramifications of practice, and protocol development are emphasized. Differential diagnosis and clinical decisions are outcomes of synthesis of pharma-codynamics, laboratory values and protocol parameter. Racial and ethnic differences are factored in clinical decisions. The combined parameters of this course in pharmacology and gerontological nursing are the foundations of the knowledge base required for the provider in establishing differential diagnosis and prescription of medications in the care of older adults.

NUR 668 two credits theory, four credits practicum
Management of Care in Advanced Gerontological Nursing

A synthesis of knowledge and research in the clinical case management of groups of older adults through collaboration with multidisciplinary health care team members and the deployment of resources in the long-term care continuum. Demonstration of advanced practice leadership role is emphasized in research application, and program development and evaluation. Advanced clinical strategies will be demonstrated to promote, maintain, and restore health to groups of multicultural older adults. The student will act as client advocate in developing and implementing strategies that have a positive effect on systems that affect the health and quality of life of older adults.

NUR 670 three credits
Budget and Finance
Prerequisite NUR 541

An overview of the economic forces affecting the American Health Care system. Current methods and techniques used in planning a budget for a specific nursing unit will be explored in depth. The impact of financial planning on staffing allocations and quality of patient care will be analyzed.

College of Visual and Performing Arts

The College of Visual and Performing Arts is a comprehensive arts college with Bachelor's and Master's programs that prepare students for careers in the arts. To assure that its programs meet appropriate standards, the University of Massachusetts Dartmouth is an accredited institutional member of the National Association of the Schools of Art and Design, the national accrediting body for the visual arts.

Undergraduate students in the college may choose concentrations from a broad spectrum of the arts, all of which provide a framework for developing a high degree of professional competence and pursuing individual creative goals. Essential to this framework are the academic programs and resources of the whole university. Students of Visual Design may select *Graphic Design/Letterform, Illustration, Photographic/ Electronic Imaging, Ceramics,* or *Jewelry/Metals* and receive a Bachelor of Fine Arts in Visual Design. Alternatively, students may pursue Bachelor of Fine Arts degrees in *Art Education, Painting, Printmaking, Sculpture,* or *Textile Design/Fiber Arts;* a Bachelor of Arts degree in *Art History;* or, in *Music,* a Bachelor of Music degree that accommodates a wide variety of individual interests. The college also offers courses in *Theater.*

The facilities and equipment on the Dartmouth and New Bedford campuses are a source of pride for our students and faculty, and are among the finest in New England. Visits by applicants are encouraged. Individual attention is also emphasized. Students are encouraged to consult with the Foundation advisors, departmental advisers, the Chairs, and the Dean about choosing programs and options and on matters concerning their progress at the university.

Graduate Programs
The college offers graduate programs leading to the Master of Fine Arts in Artisanry, the Master of Fine Arts in Visual Design, and the Master of Art Education. The MFA in Artisanry and the MFA in Visual Design are professionally oriented and develop the abilities and interests of each student toward the broad goal of advanced professional practice. The Master's in Art Education has components for in-service art teachers, fine arts degree holders, and continuing education students. Graduate program descriptions are available from the Office of Graduate Affairs.

Admission to the Undergraduate Major Programs in Studio Art
New freshman applicants are encouraged to seek admission to the college's studio art programs as "Studio Art Unspecified" majors. During the Foundation Year they will have an opportunity to select specific areas of specialization in consultation with an advisor. New freshman applicants are also invited to submit an art portfolio (see below).

Transfer students are admitted into majors only. Those with a substantial portion of their foundation work completed will present an art portfolio as one element in the department's evaluation of their previous work for transfer credit at UMass Dartmouth. They will also be asked to identify a preferred option, such as "Graphic Design/Letterform" or "Ceramics," if their major of choice offers options.

Transfer students who wish to be admitted into courses above the sophomore level must bring a portfolio to transfer orientation. Acceptance into advanced courses is rare, not automatic.

Further specific instructions are given in the *Admissions Bulletin*.

Art Portfolio Option
Entrance to the visual arts programs is competitive and based on previous performance. To gain a closer view of applicants' abilities and preparation, the College of Visual and Performing Arts will review students' art work as a part of the admissions process. Submission of a portfolio is optional. The college recognizes that portfolios may not predict every individual's potential for success; it is also aware that many applicants may not have had substantial art training in high school.

A submitted portfolio should consist of fifteen 35mm slides presented in an 8 1/2" by 11" plastic file sheet. Slides should have labels with applicant's name, size, medium, and date of completion of the work; a dot in the loer left hand corner; and numbers. The numbers should correspond to a list which includes information that will be useful in understanding the work, e.g., descriptions of assignments, concepts, or processes. The college is especially interested in seeing examples of student drawing from direct observation. See the *Admissions Bulletin* for further instructions.

Music Audition
An audition is required of applicants to the music program. The Department of Music and the Office of Admissions will arrange a convenient time with applicants.

Advanced Placement
Credit for advanced placement courses will be awarded if grades of 3 or above (on a 1-5 scale) have been achieved in courses which have UMass Dartmouth equivalents. The department will determine whether this credit will be given toward elective or major requirements.

Course Prerequisites
Many programs in the College of Visual and Performing Arts are sequential, building knowledge and skills step-by-step. Course prerequisites, which assure that essential knowledge has been achieved, are identified in the course descriptions found in this catalogue. Normally, courses are offered only once each year; therefore, students entering the college at mid-year should be aware that they may have to wait until the following semester to meet a prerequisite.

Studio Credit/Class Hour Requirements
Studio art courses require three hours of work per week for each hour of credit. In most studio art courses, two hours per credit a week are scheduled in class, and the third hour is the individual student's responsibility to complete. Courses which require a model or special facilities may have the three required hours per credit per week scheduled in class.

Cumulative Average
To be eligible to graduate, a student must achieve at least a 2.0 cumulative average (C) for the entire program with a minimum of 2.0 in courses in the major field of study. Individual departments may set higher standards. These are identified in subsequent sections of the catalogue.

Retention of Student Work
The College of Visual and Performing Arts reserves the right to retain examples of student class work for teaching and exhibition purposes.

Foundation Program

Required of All Majors
(except Art History and Music)

Anne Leone, Director

The foundation program at the College of Visual and Performing arts is a rigorous program designed to promote creativity and develop in the young artist an understanding of the visual language. Emphasis is placed on developing drawing skills through organic and inorganic subject matter, refining abilities in working with two- and three-dimensional design problems, and identifying professional interests. The foundation courses (at the 100 level) are required for all visual arts majors and are a prerequisite for all 200- or higher-level courses in Fine Arts, Textile Design/Fiber Arts, Visual Design, and Art Education. Two Art History courses, ARH 102 Renaissance to Modern Art and ARH 103 Development of Modern Art, are also required, and together with ARH 101 Ancient and Medieval Art (scheduled for the second year), they provide an historical survey of the art of the Western world.

Foundation Courses

Unless specifically stated, courses are studios that have two scheduled contact hours weekly for each credit offered.

FND 100 one credit
Visual Arts Freshman Colloquium I
1 25 lecture hours

Introduces new visual arts students to the resources of the College of Visual and Performing Arts and the University. In addition, it is a forum for faculty and visiting artists to discuss current topics in the arts.

FND 101 one credit
Visual Arts Freshman Colloquium II

Continuation of ART 100.

FND 110 three credits
Foundation Drawing I

A studio exploration of varied subject matter, with special emphasis on the human form and its representation on the 2-D surface with various drawing media.

FND 112 three credits
Foundation Drawing II
Prerequisite: ART 110

Continuation of ART 110.

FND 114 two credits
2D Workshop I

An introduction to 2-D principles of composition through projects exploring line, shape, texture, tone, and color. Students work with basic wet and dry line color media.

FND 115 two credits
2D Workshop II
Prerequisite: ART 114

Continuation of ART 114.

FND 124 two credits
3D Workshop I

An introduction to 3-D concepts through projects exploring form, space, structure, texture, color, and environment. Students work with basic sculpture processes of carving, modeling, casting, and assemblage.

FND 125 two credits
3D Workshop II
Prerequisite: ART 124

Continuation of ART 124.

ARH 101 three credits
Ancient to Medieval Art
3 lecture hours

This course is a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque, and Gothic Art.

ARH 102 three credits
Renaissance to Modern Art
3 lecture hours

This course surveys painting, sculpture, and architecture from the Renaissance to Impressionism. ART 101 and 102 need not be taken in sequence.

ARH 103 three credits
Development of Modern Painting and Sculpture
3 lecture hours
Prerequisite: ARH 102 or permission of instructor

Painting and sculptural developments from the late 19th century to World War II. The historical context of major artists and the theoretical, critical and aesthetic issues surrounding their works will be discussed.

Art Education

Faculty and Fields of Interest

Peter London art education, painting, art therapy

Arlene B. Mollo art education, painting and design

Dante Vena (chairperson) art education, printmaking, drawing and painting

Art Education Major BFA degree

The Art Education program provides a sequence of practical, theoretical and studio-based experiences leading to proficiency in the teaching of art. The scope of the program permits the student to work in public or private school systems or in other private and public agencies. The program emphasizes both supervised field work in surrounding communities and university courses in the theory and practice of art and education. All courses, except Senior Seminar and Student Teaching, are open to all students in the University community.

Certification in art education is the goal of most art education majors. Students wishing certification should consult with the department chairperson. Certification may also be earned by students who already possess the bachelor's degree.

Various choices are presented in the curriculum shown here, and further substitutions are possible with the approval of the Art Education chairperson. Art Education students complete a concentration in one of the studio areas in the College of Visual and Performing Arts. The studio concentration may be in Painting, Graphic Design, or Textile Design. Upon consultation with the Art Education chairperson, a program of studio electives can be designed in other areas, such as Crafts, Art History, Sculpture, 2-D work. Students interested in Art Therapy can design a concentration in that area in consultation with the Art Education chairperson.

Students must choose to pursue either the elementary (N-9) or the secondary (5-12) teaching certificate. The appropriate Art Education courses must be selected depending upon the level of certification sought, in consultation with the Art Education chairperson, prior to class registration each semester.
A positive recommendation by the Department Chairperson permits the student to do his/her student teaching (Practicum). Students are advised to see the Chairperson of the Department at the beginning of their senior year to arrange their Practicum.

Requirements
(Through Freshman Class of 1993)

		Semester Credits	
First Year		**First**	**Second**
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing	3	3
ART 114, 115	2D Workshops I and II	2	2
ART 124, 125	3D Workshops I and II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Painting		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science Electives	3	3
		17	**17**
Second Year			
AED 200	Development of Visual Symbols	3	
ARH 101	Ancient and Medieval Art	3	
EDU 205 PSY 201	Human Development and Learning **OR** Child Psychology		3
AED 210	Arts in Societies[1]		3
FIA 221, 222	Figure Drawing	3	3
	CVPA Studio Concentration[2]	6	3
	Art History Elective		3
	Literature Electives	3	3
		18	**18**
Third Year			
AED 300	Methods and Materials: Curriculum Methods in Art Education[3]	3	
AED 310	Concepts and Principles: Curriculum Methods in Art Education[3]		3
EDU 201 EDU 210 EDU 409	Philosophy of Education **OR** History of Education **OR** Sociology of Education	3	
AED 420	Art Therapy I[4]		3
	Science Electives	3	3
	CVPA Studio Concentration[2]	6	9
		15	**18**
Fourth Year			
AED 400	Humanistic Approaches: Curriculum Methods in Art Education[3]	3	
AED 410	Art Education Senior Seminar		3
AED 411 AED 412	Student Teaching (Elementary K-9) **OR** Student Teaching (Secondary 5-12)		9
	Humanities/Social Science Electives	3	3
	CVPA Studio Concentration[2]	9	
		15	**15**
	Total credits:		**130**

In all, among the courses above, four Art History courses are required for graduation.

[1] Required for secondary Art Education majors

[2] Consult with Art Education advisor

[3] These courses have two sections, one for elementary and another for secondary certification

[4] Required for elementary Art Education majors

Requirements (Beginning with the Freshman Class of 1993)		Semester Credits	
First Year		**First**	**Second**
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing	3	3
ART 114, 115	2D Workshops I and II	2	2
ART 124, 125	3D Workshops I and II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Painting		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science Electives	3	3
		17	**17**
Second Year			
AED 200	Observational Strategies in Artistic Dev.	3	
AED 215	Special Needs: Current Issues		3
ARH 101	Ancient-Medieval Art History	3	
	Art History Elective		3
FIA 221	Figure Drawing	3	3
	Art Education Electives	3	3
	Studio Concentration**	3	3
	Literature Electives	3	3
		18	**18**
Third Year			
AED 300	Methods & Materials	3	
AED 310	Curriculum Design		3
	Art Education Elective	6	
	Studio Elective		6
	Studio Concentration*	3	3
	Science Electives	3	3
		15	**15**
Fourth Year			
AED 405	Social Philosophy & History of Art Education	3	
AED 411	Practicum/Seminar: Elementary N-9 **OR**		
AED 412	Practicum/Seminar: Secondary 5-12		6
	Studio Electives	6	3
	Studio Concentration*	3	3
	Humanities Electives	3	3
		15	**15**
	Total credits:		**130**

*The Studio Concentration requirement consists of 18 credits of sequential study (sophomore, junior, and senior year studio courses) in one of the major studio areas of the College of Visual and Performing Arts.

Art Teacher Certification Program

Those who already possess a bachelor's degree and wish to return to school to receive art teacher certification may apply for acceptance to the teacher certification program. This post-baccalaureate program has the approval of the Bureau of Teacher Certification, Massachusetts Department of Education, to lead to a single level permanent certification in Massachusetts as an art teacher in grades N-9 or 5-12. As an added benefit, interstate recognition makes art teacher certification earned at UMass Dartmouth reciprocally valid in many other states.

This program is designed for students with already strong backgrounds in studio work who want certification which allows them to work in schools, museums, or social service agencies. Candidates for teacher certification must demonstrate studio competencies in areas specified by the State Department of Education Standard I prior to applying for the state teaching certificate. While at UMass Dartmouth, certificate students take courses from the listed requirements for the major in Art Education that apply toward state certification standards, including courses in studio art, the social theory and philosophy of education, human development and learning of art, and teaching methodology. During their required field experience, students will visit schools and other learning sites. The courses and field work provide students with the opportunity and skills to develop effective strategies for work with learners in a variety of settings.

The full program requires 21 credits, and additional credits may be needed if a certificate student lacks prerequisites or depth of studio preparation.

The Commonwealth of Massachusetts is changing to a new teacher certification process. The current one-stage Lifetime Certificate will be replaced by a two-stage process in which a Provisional Certificate is earned, followed by a Full Certificate. Students who complete the Department of Art Education's program by October 1, 1994, will be eligible for the current Lifetime Certificate.
Students who complete the Art Education program after October 1, 1994, will be eligible for the Provisional Certificate. Within five years of becoming certified, Provisional teachers must earn a Full Certificate in order to maintain professional standing and teach in the public schools.

A Master's degree that includes clinical experience and education coursework is required for Full Certification. The department will be offering this degree through its Art Education graduate program, including coursework and experience designed to enable students to qualify for full Certification. Those interested should consult the department about the Art Education master's degree options.

AED 200 three credits
Observational Strategies in Artistic Development

Field-based pre-practicum opportunities for students to conduct and assess observations of learners and teachers. Students will record, interpret, and analyze behavior in written and video form. Emphasis is placed on expanding the student's view of the relationship between the environment, developmental stages, and learning objectives. (Formerly titled *Development of Visual Symbols*)

AED 210 three credits
Arts in Societies

Presents the extensive range of roles that artists play in other societies past and present. The course will employ lectures, interviews with artists, papers and slide presentations.

AED 215 three credits
Special Needs: Current Issues

Introduction to the visual arts as a therapeutic instrument, examined through practical experiences, discussions, and readings. The course explores art's potential in the physical therapies, diagnosis, affective and cognitive therapies, explores the variety of special needs students, and discuss current issues and literature. An important goal is to promote understanding in dealing with special needs students in grades N-9 and 5-12

AED 300 three credits
Methods and Materials: Curriculum Methods in Art Education

Experimental uses of materials and methods and their didactic implications. This course seeks to develop skills in designing curricula for varied age groups which focus on the expressive range of each media. Students will meet for a studio-based session to explore alternative media and techniques, followed by a second session in which studio majors pursue the ideas to create art objects and art education majors pursue the ideas to design lessons and units with which these same ideas may be taught to others. In accordance with the Massachusetts Department of Education, students seeking teaching certification in either N-9 or 5-12 will have readings and field practicum specifically to that age range.

AED 310 three credits
Curriculum Design

Development of curriculum units in the visual arts applicable to educational settings in public schools as well as other selected institutions. From a basis in understanding the broad goals of art education, students plan appropriate learning experiences. Curricula will be designed based upon traditional con-cepts and principles of art in a context of human development, physical and social environment, and aesthetics. In accordance with the recommendations of the Massachusetts Department of Education, students seeking teaching certification in either N-9 or 5-12 will have readings and field practicum specifically to that age range.

AED 400 three credits
Humanistic Approaches: Curriculum Methods in Art Education

Development of skills in designing programs for personal growth and the nurture of creative expression. The principles of humanistic psychology, including the ideas and theories of Carol Rogers, Abraham Maslow, Erich Fromm, and Rollo May will be studied.

AED 405 three credits
Social Philosophy and History of Art Education

Relationships between philosophical influences and historical practices in art education. Writings by Dewey, Read, Langer, and Broudy provide a philosophical framework for analysis of theories by Cizek, Lowenfeld, Eisner, and Gardner. Their theories will be set in a social context in order to describe how the general period and the specific history of each author shaped that individual's thinking. Comparative historical interpretations by Gaitskill, Effland, and Korzenik will also be explored.

AED 411 six credits
Practicum/Seminar: Elementary
Prerequisite: Departmental approval

Practicum experience for which the student is assigned to a school corresponding as much as possible with the student's own interests. Working with and supported by a cooperating teacher and supervisor from the University, the student is afforded the opportunity to conduct art experiences under actual classroom conditions and responsibilities. This practicum is a fifteen-week, full-time classroom experience at the elementary level N-9. A weekly seminar will be held at school sites for the student teachers to share insights and problems. (Formerly titled *Student Teaching K-9*, for 9 credits)

AED 412 six credits
Practicum/Seminar: Secondary
Prerequisite: Departmental approval

Practicum providing a fifteen-week, full-time classroom experience under the direction of a university supervisor and working with and supported by a cooperating teacher. The student teacher is afforded the opportunity to conduct art experiences under actual classroom conditions and responsibilities at the secondary level 5-12. A weekly seminar will be held at school sites for

Graduate Courses in Art Education

Note: Some graduate courses may be open to undergraduates. Please consult your department chairperson. The official list of graduate courses is published in the Graduate Catalog.

the students teachers to share insights and problems about their practicum. (Formerly titled *Student Teaching 5-12*, for 9 credits)

AED 413 one credit
Children's Art Workshop

Provides practical experience with children ages 6-12 on Saturday mornings in the Art Education rooms. The teaching of the workshop will be based on a humanistic approach to art education and must be taken simultaneously with AED 400.

AED 435 three credits
Art, Artists, Aging, and Enjoyment
Prerequisite: 200-300 level courses in Art/Art Education or 12 or more credits in Gerontology courses, or GRT 310

Art history as it relates to the careers of older artists; the representation of age in art; the design of art programs of use to elders and a review and practice of appropriate media will be presented in a combined lecture and studio format.

AED 460 three credits
Arts for the Elementary Classroom

Students preparing to teach grades K-6 will learn how to integrate art into the curriculum. Methodologies, media, and techniques will be explored to help the classroom teacher who is not an arts specialist extend and integrate art lessons.

AED 495
Independent Study

AED 496
Directed Study

AED 900
Contract Learning

AED 530 three credits (six credits maximum)
Studio

Graduate studio courses will be held on a tutorial basis. The graduate student is responsible for making informed choice of studio research/project. With the approval of the instructor, the student will exhibit his or her work in a final show as a necessary part of the Master's degree requirement. The student may work in any media providing that he or she has shown a sufficient portfolio of work indicating real promise for independent study, there is willing faculty to engage as a critic to the project, and space and equipment are satisfactory.

AED 540 three credits (six credits maximum)
Thesis

Allows the candidate to pursue a line of thinking and/or research in a mature and critical manner to the point of making a useful contribution to the field of Art Education. The thesis advisor, who serves as Committee Chairperson for the thesis review, will be selected by mutual consent of the student and participating faculty.

AED 570 three credits
Special Topics in Art Education

Offered as needed to present advanced material to graduate students. The specific topic is stated when the course is scheduled. May be repeated with change of content.

AED 615 three credits (six credits maximum)
Graduate Seminar in Art Education

Provides focus and coherence for the program. The content of the course will derive from the field work experiences, readings, and studio work. Guest lectures in fields of Art, Education, and Psychology will be scheduled. Required of all master's degree candidates.

AED 616 six to twelve credits
Practicum

Classroom/laboratory experience. Varies in extent and structure depending upon the student's chosen option and/or professional level

Ia and Ib (Option A) six credits

Having taught for at least one full year under classroom conditions, candidates taking this option should profit from experimenting with new methods and concepts by teaching in the Art Education laboratory (Saturday morning art classes). Part of their practicum will also be used to make critical observations of the field work of undergraduates during the undergraduates' student teaching.

IIa and IIb (Option B) twelve credits

A 15-week, full-time classroom experience at the appropriate grade level of either K-9 (elementary certification) or 5-12 (secondary certification). Under the direction of a cooperating teacher and a supervisor from UMass Dartmouth, the student conducts art activities and undertakes full responsibilities of a professional art teacher. School assignments are made on the basis of the student's own interests whenever possible.

IIIa and IIIb (Option C) six credits

Having had a prerequisite of 15 weeks' undergraduate student teaching, candidates in this practicum will have the opportunity to broaden the scope of their experience to test and increase classroom performance. A minimum of five hours a week for fifteen weeks both semesters is required. This teaching may be at any level and kind commensurate with the goals and skills of the student teacher.

Art History

Art History is a humanistic discipline that is philosophically allied to the liberal arts. It examines a variety of visual experiences from Western and non-Western cultures. Its subjects include architecture, sculpture, painting, graphics, and crafts from Ancient to Modern times. By studying the political, sociological, and intellectual events that have shaped the creation of art and civilization, students are able to assess critically the material products of past and present cultures.

Art History majors are helped to develop writing skills as well as verbal and visual analytical abilities. As an intellectual experience, a degree in Art History is a life-long critical tool enabling the graduate to enter the job market with skills equivalent to the Liberal Arts graduate, yet have the added advantage of visual critical abilities.

This major provides the intellectual training for students wishing to prepare for advanced work in one of the specialized areas of Art History or a related field. It is also a basic discipline for studio majors as well as liberal arts majors, particularly for those students who are interested in interdisciplinary relationships.

Faculty and Fields of Interest

Lasse B. Antonsen gallery director, modern and contemporary art

Magali M. Carrera (chairperson) ancient Mexico and Peru and traditional art of Africa, America, and Oceania

Pearlee Freiberg renaissance, baroque and eighteenth century art

Thomas W. Puryear medieval art and American and early modern architecture

Michael D. Taylor (dean of the college) medieval and renaissance

Art History Minor

The Minor in Art History is designed to allow students who have selected another major area of study but who elect to pursue Art History beyond the introductory level to be so recognized by the department and the university. Because Art History impinges closely upon a variety of other humanistic disciplines, the complementary nature of the coursework selected by students outside the Art History major is more readily formalized by the Minor in Art History.

Admission to the Minor

Any student who has earned at least 54 university credits with a cumulative GPA of 2.0 and a 2.5 GPA in his or her major may request admission to the Art History Minor. Permission may be granted by the Chairperson, provided such request is made in writing, at any time before graduation. Forms are available from the registrar.

Requirements

- At least 21 hours in Art History (designated by the prefix ARH), at least 12 of which must be above the 100 level and three credits of which must be at the 400 level in Seminar.
- Students must maintain a 2.0 GPA in all

Art History Major BA Degree

Requirements Semester Credits

		First	Second
First Year			
ARH 102	Renaissance to Modern Art	3	
ARH 103	Modern Painting and Sculpture		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Foreign Language, 100-level	3	3
	History or Philosophy Electives	3	3
	Science Electives	3	3
		15	**15**
Second Year			
ARH 101	Ancient and Medieval Art	3	
	Art History Electives		6
	Literature Electives	3	
	Foreign Language, 200-level	3	3
	History of Philosophy Elective	3	
	Social Science Electives	3	3
		15	**15**
Third Year			
	Art History Electives	6	6
	Studio Art Elective		3
	Cognate Course Electives	3	3
	Social Science Electives	3	3
	Free Electives	3	
		15	**15**
Fourth Year			
	Art History Electives	3	6
	Cognate Course Electives	3	3
	Free Electives	9	6
		15	**15**
	Total credits:		**120**

Among the Art History major requirements, one Art History elective must be taken in a non-western area and one 400-level Art History seminar is required.

Courses for the social science elective may be selected from Mathematics, Computer and Information Science, Psychology, Sociology-Anthropology, Political Science, Economics.

Literature courses may be selected from English Literature or Literature in Translation.

Foreign language courses included above reflect the foreign language requirement for the bachelor of arts degree at the university. The requirements listed for the Bachelor of Arts degree in the College of Arts and Sciences now also apply to Art History majors. See the front section of the college of Arts and Sciences chapter of this catalogue for an exact listing of those requirements.

For the Cognate Courses, a program of cognate course work will be filed with the student's advisor for approval. In the case of transfer students, this will be done at the time of admission to the university. Some areas normally considered cognate to Art History are:

Studio Art
Art Education
Music
Drama
History
Literature
Sociology-Anthropology
Philosophy.

Other subjects may be accepted as related course work in consultation with the student's advisor.

ARH 101 three credits
Ancient and Medieval Art

This course is a survey of Prehistoric, Egyptian, Mesopotamian, Greek, Roman, Byzantine, Carolingian, Romanesque, and Gothic Art.

ARH 102 three credits
Renaissance to Modern Art

This course surveys painting, sculpture, and architecture from the Renaissance to Impressionism. ART 101 and 102 need not be taken in sequence.

ARH 103 three credits
Development of Modern Painting and Sculpture
Prerequisite: ARH 102 or permission of instructor

Painting and sculptural developments from the Late 19th Century to World War II. The historical context of major artists and the theoretical, critical and aesthetic issues surrounding their works will be discussed.

ARH 306 three credits
Roman Art

This course attempts to define the Roman qualities of Roman Art, in contrast to its Etruscan, Greek and Hellenistic forebearers. The development of painting, sculpture and architecture is traced to the time of Emperor Constantine, ca. 325 A.D.

ARH 315 three credits
Romanesque Art

This course analyzes architecture, painting, and sculpture in western Europe from about the year 1000 through the 12th century.

ARH 316 three credits
Gothic Art

This course is concerned with the architecture, sculpture, manuscript painting, and stained glass from the beginnings of the Gothic in England, Normandy, and the Isle de France to the internationalization of the style in the 13th and 14th centuries.

ARH 321 three credits
Early Northern Painting

The development of panel painting in France and Flanders from 1400 to the early years of the 16th century. Close attention also is paid to miniature painting, engraving, and the beginnings of printing in this period.

ARH 325 three credits
Italian Renaissance Art

A study of the painting, sculpture, and architecture in Italy during the 15th and 16th centuries.

ARH 328 three credits
Venetian Painting

A survey of painting in Venice from the 15th through the 18th centuries. Emphasis is placed on the 16th century.

ARH 329 three credits
Portraiture

Issues and problems in portraiture, of all media, from the Renaissance through the 20th century.

ARH 336 three credits
Baroque Art in Italy and France

A study of painting, sculpture, and architecture in Italy and France during the 17th century.

ARH 337 three credits
Baroque Art in Flanders, Holland, and Spain

A study of 17th-century painting and graphics in these countries, with in-depth studies of Rubens, Rembrandt, and Velázquez.

ARH 338 three credits
British Art

A survey of British art, with emphasis on painting and graphics, from the 16th through the 19th centuries.

ARH 339 three credits
18th-Century European Painting

A study of the 18th-century European painting, in France, Britain, Italy, and Spain.

ARH 340 three credits
Late 18th-Century Art in Britain and France

An investigation of themes and issues, including the Academy, Neoclassicism, and Historicism.

ARH 342 three credits
Impressionism to Symbolism
Prerequisite: ARH 102 or permission of instructor

An in-depth study of art from the 1860s to the early years of the 20th century.

ARH 343 three credits
Cubism
Prerequisite: ARH 102 or permission of instructor

This course explores the origin and development of Cubism in France and its impact on artistic developments throughout Europe and the Americas. The major emphasis of this course is on painting and sculpture.

ARH 344 three credits
Expressionism
Prerequisite: ARH 102 or permission of instructor

A cultural and historical study of Expressionism from its late 19th-century forerunners through contemporary Neo-Expressionism.

ARH 347 three credits
Dada and Surrealism
Prerequisite: ARH 102 or permission of instructor

A detailed investigation of these avant-garde movements in Switzerland, Germany, France, Italy, and the U.S.A. The influence of both Dada and Surrealism on contemporary art will be examined.

ARH 349 three credits
Development of Modern Architecture

A study of world architecture from the mid-nineteenth century to 1950.

ARH 350 three credits
Picasso
Prerequisite: ARH 102 or permission of instructor

An in-depth study of Picasso's art, beginning with the youthful and academic work of the 1890s and concluding with the expressionistic and erotic work of the 1960s and 70s.

ARH 352 three credits
American Architecture to 1900

A study of architecture in North America from the first settlers to the early work of Frank Lloyd Wright.

ARH 353 three credits
Bauhaus
Prerequisite: ARH 102 or permission of instructor

Emphasizes the major innovations of the artists, architects, designers, and craftspeople at the Bauhaus in the context of their times. The range of works discussed will emphasize specific media concerns and multi-media experiments.

ARH 354 three credits
Russian and Soviet Art: From the 1860s to the Present
Prerequisite: ARH 102 or permission of instructor

An in-depth study of themes and issues in 19th and 20th century Russian and Soviet art, with special focus on Malevich and Suprematism; Kandinsky and the "Blue Rider"; Tatlin, Lissitzsky, Rodchenko and Constructivism; and the Post-Modern period.

ARH 355 three credits
American Painting
Prerequisite: ARH 102 or permission of instructor

A survey of major artists and tendencies from the earliest colonial limners to the triumph of Abstract Expressionism in the mid-20th century.

ARH 356 three credits
Art Since 1945
Prerequisite: ARH 102 or permission of instructor

A study of contemporary art, beginning with Abstract Expressionism.

ARH 360 three credits
Survey of Primitive Art

An introduction to the arts of Africa, Oceania, and the Americas. The course will emphasize method, theory, and cross-cultural analysis.

ARH 361 three credits
Art and Culture of Africa

A survey of the arts, crafts, and architecture of Africa. Historical developments, stylistics, and aesthetics will be investigated within a socio-cultural framework.

ARH 363 three credits
Art and Culture of Ancient Mexico

An examination of the arts and architecture of Mexico and Central America before the arrival of the Spanish.

ARH 364 three credits
Art and Culture of Ancient Peru

A survey of art and architecture of the high cultures of Peru from 5000 B.C. to 1500 A.D.

ARH 365 three credits
North American Indian Art I

Survey of the arts, crafts and architecture of the Native American populations in the Southwest, California and the Plains.

ARH 366 three credits
North American Indian Art II

This course will investigate the arts and crafts of the Northwest Coast, The Arctic area, the Eastern woodlands, and the Southeast.

ARH 367 three credits
Oceanic Art

A detailed survey of the arts and crafts of Melanesia, the Pacific Islands, and Australia. Historical and cultural determinants will be examined.

ARH 380 three credits
Feminist Perspectives on Art History
Prerequisites: ARH 101, 102, WMS 101; or permission of instructor

Analyzes the feminist critique of the history of art. This course will review recent critiques of both art and culture through an investigation of the production and evaluation of art and the role of the artist in Western and non-Western cultures.

ARH 390 three to six credits
Independent Study

Intended to allow students to examine in depth a particular aspect of the history of art. Independent study is open to students who have had a minimum of four Art History courses. A proposal of study must be submitted to the instructor prior to enrollment.

ARH 442 to **490** three credits
Seminars
Prerequisite: Permission of instructor

Students will deal with bibliography, research methods, and various approaches to Art History. They will pursue extensive research which will be presented in written and oral formats.

ARH 445 three credits
Issues in 20th-Century Art

ARH 450 three credits
Problems in American Art: New England Architecture

ARH 460 three credits
Problems in Primitive Art

ARH 461 three credits
Problems in Pre-Columbian Art

ARH 481 three credits
Literature of Art: Iconography

ARH 482 three credits
Literature of Art: Artists' Biographies

ARH 483 three credits
Literature of Art: Grand Tour in Art and Literature

ARH 495
Independent Study

ARH 496
Directed Study

ARH 900
Contract Learning

The department offers two undergraduate degrees, a BFA in Visual Design and a BFA in Textile Design/Fiber Arts.

Under those two headings students pursue work in a wide variety of options. These options are grouped into two general categories, visual arts related to visual design professions (Visual Design) and visual arts related to the crafts professions (Artisanry).

Visual design options include Graphic Design/Letterform, Illustration, and Photographic/Electronic Imaging, with students also able to select a course sequence in calligraphy. Artisanry options include Ceramics, Jewelry/Metals, Wood/Furniture Design, and Textile Design/Fiber Arts.

The Design Department takes advantage of being in a university structure—providing a challenging stimulus within the whole, interrelating the verbal with the visual and the conceptual with the perceptual. Because the function of Design is to communicate, it has a built-in relationship with all disciplines, and involves cultural, behavioral, social and technological factors.

All transfer students who wish to be admitted to courses marked with a "*" above the sophomore level must bring a portfolio to transfer orientation. Acceptance into advanced courses is rare, not automatic.

No more than 65 credits may be used as transfer credits into the design department.

A summer study-abroad experience is organized yearly for sophomore y ear or more advanced students of Visual Design, who may earn 9 credits studying in a country such as France, Belgium, or Italy. Contact Professor Harold Pattek about this opportunity.

Faculty and Fields of Interest

Robert E. Barry illustration

Alma de la Ronde photographic imaging, history of photography, alternative photographic processes

Karon Doherty ceramics

Barbara Eckhardt textile design/fiber arts

Carl Fasano illustration

Elaine Fisher photographic imaging

Howard T. Glasser calligraphy, graphic design/letterform

Barbara Goldberg (director: MFA programs) textile design/fiber arts

Harvey Goldman (chairperson) electronic imaging

Christopher Gustin (spokesperson: artisanry) ceramics

Susan Hamlet jewelry/metals

Karen Klingon illustration

Carolyn A. J. Mills textile design/fiber arts

Mark Millstein electronic imaging

Harold I. Pattek graphic design/letterform

Marjorie Durko Puryear textile design/fiber arts

Alan Burton Thompson jewelry/metals

Stephen Whittlesey wood/furniture design

Howard Windham graphic design/letterform, history of design

Dietmar Winkler communication design

Janine Wong graphic design/letterform

Visual Design Major
BFA degree

Visual Design Options

The Visual Design area is a cluster of professionally-oriented options: Graphic Design/Letterform, Illustration, and Photographic/Electronic Imaging. The emphasis throughout these programs is communication. Students explore visual communication in the widest sense, employing contemporary electronic and computer technology.

Faculty representing a variety of philosophies and viewpoints teach visual design as an art form, a craft, or as information dissemination for education, business and commerce, or the entertainment industries. The modern visual artist/designer must be broadly educated, articulate, and literate, an active participant in all levels of a project, not merely someone who dutifully packages the finished product.

Graphic Design/Letterform Option

The Graphic Design/Letterform option is directed toward professional competence. It refuses to fetter the designer with a rigid set of principles or practices. The assigned projects deal with communications in the widest sense, and the student is expected to solve these projects through a creative process that combines conceptual and technical skills.

Requirements		Semester Credits First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 251, 252	*Graphic Design I, II	3	3
DES 253, 254	*Letterform I, II	3	3
	Required Studio Support[1]	3	3
FIA 221	Figure Drawing I	3	
FIA	200-Level Drawing		3
	Literature electives	3	3
ARH 101	Ancient and Medieval Art	3	
	Humanities/Social Science elective		3
		18	**18**
Third Year			
DES 351, 353	*Graphic Design III, IV **OR**	3	3
DES 352, 354	*Letterform III, IV		
DES or FIA	Studio electives[2]	3	3
DES or FIA	Studio elective[2]	3	
DES 331	History of Design **OR**		3
	Studio elective[2]		
	Science electives	3	3
ARH	Art History elective	3	
	Free elective		3
		15	**15**
Fourth Year			
DES 451, 453	*Graphic Design V, VI **OR**	6	6
DES 452, 454	*Letterform V, VI		
DES or FIA	Studio electives[2]	3	3
	Humanities/Social Science electives[3]	3	3
	Free electives	3	3
		15	**15**
	Total credits:		**130**

*
Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

1
Studio Support Pool (select two courses):

FIA 321, 322	Figure Drawing III, IV
DES 213, 214	Calligraphy I, II
DES 211	Color Studio
DES 281, 282	Photographic Imaging I, II

The substitution of a coherent sequence of courses drawn from disciplines represented across the UMass Dartmouth campus is possible, with written permission of the department chairperson. The listed courses may also be used as studio electives or free electives.

2
Studio Elective Pool (select six courses from the following, which might be offered at either the main campus or the New Bedford campus):

Any studios in the Artisanry area
Any studios in the Design area
Any studios in Fine Arts area

The following specific list is recommended for the selections, but not required:

FIA 321, 322, 421, 422
Drawing III-VI

DES 383,384, 483, 484
Electronic Imaging III-VI

DES 351, 352, 451, 452
*Graphic Design III-VI

DES 221, 222, 321, 322, 421, 422
Illustration I-VI

DES 353, 354, 453, 454
*Letterform III-VI

DES 281, 282, 381, 382, 481, 482
Photographic Imaging I-VI

DES 385
Studio Photography

DES 213, 214, 313, 314
Calligraphy I-IV

3
At least one of these courses should be at the 300- or 400-level.

Illustration Option

The Illustration option introduces students to a wide range of specialized areas within the field. Editorial, book, and documentary approaches in illustration may be pursued depending on the students' various interests and talents. High level drawing and color skills are developed and emphasized in this area of study.

Requirements

Semester Credits

		First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 221, 222	*Illustration I, II	3	3
DES 253	Letterform I **OR**	3	
DES or FIA	Studio elective[2]		
DES 254	Letterform II **OR**		3
DES or FIA	Studio elective[2]		
FIA 241	Painting I **OR**	3	
	Studio elective[2]		
DES 211	Color Studio **OR**		3
	Studio elective[2]		
FIA 221, 222	Figure Drawing I, II	3	3
ARH 101	Ancient and Medieval Art	3	
	Literature electives	3	3
	Humanities/Social Science elective		3
		18	**18**
Third Year			
DES 321, 322	*Illustration III, IV	3	3
DES or FIA	Studio electives[2]	3	3
DES or FIA	Required Studio Support[1]	3	3
ARH	Art History elective	3	
	Science electives	3	3
	Free elective		3
		15	**15**
Fourth Year			
DES 421, 422	*Illustration V, VI	6	6
DES or FIA	Studio electives[2]	3	3
	Humanities/Social Science electives[3]	3	3
	Free electives	3	3
		15	**15**
	Total credits:		**130**

*

Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

1

Studio Support Pool (select two courses):

FIA 321, 322
Figure Drawing III, VI

DES 283, 284, 383, 384
Electronic Imaging I-IV

FIA 223, 224
Nature Drawing I, II

FIA 225
Object Drawing

The substitution of a coherent sequence of courses drawn from disciplines represented across the UMass Dartmouth campus is possible, with written permission of the department chairperson. The listed courses may also be used as studio electives or free electives.

2

Studio Elective Pool (select six courses from the following, which might be offered at either the main campus or the New Bedford campus):

Any studios in the Artisanry area
Any studios in the Design area
Any studios in Fine Arts area

The following specific list is recommended for the selections, but not required:

FIA
300-400 Level Painting or Printmaking

FIA 321, 322, 421, 422
Drawing III-VI

DES 213, 214, 313, 314
Calligraphy I-IV

FIA 311
Composition and Design

DES 383, 384, 483, 484
Electronic Imaging III-VI

DES 251, 252, 351, 352, 451, 452
Graphic Design I-VI

DES 281, 282, 381, 382, 481, 482
Photographic Imaging I-VI

DES 253, 254, 353, 354, 453, 454
Letterform I-VI

3

At least one of these courses should be at the 300- or 400-level.

Photographic/Electronic Imaging Option

Students are introduced to traditional photographic and contemporary electronic media. Vigorous historical and conceptual components and hands-on skills and methodologies complete the course of study, allowing a student to solve a wide range of visual and aesthetic challenges. The communications industry, most corporations and businesses, the entire field of education, the health field, and other entities in the media are in need of people educated in these areas.

Photography courses cover basic to advanced equipment and processing information, historical to contemporary alternative processes, computer digitization, and an understanding of image content as it related to communication. Course work in color perception and processing, the history of photographic/electronic media, commercial studio lighting, and photographic processes in printmaking complete this course of study.

Students in Electronic Imaging courses are introduced to digital and electronic technology with the rich history of photographic camera and darkroom image manipulation as a foundation. The manipulation and integration of images, video, graphics, text, and sound are combined in the creation of a common language. Students in this course of study will become knowledgeable in computer image capturing and processing technology, computer animation, and multi-media production.

Requirements		Semester Credits	
		First	**Second**
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 281, 282	*Photographic Imaging I, II	3	3
DES 251, 252	Graphic Design I, II	3	3
ARH 101	Ancient and Medieval Art	3	
DES 332	History of Photography		3
DES 253	Letterform I **OR**	3	
DES or FIA	Studio elective[2]		
DES 254	Letterform II **OR**		3
DES or FIA	Studio elective[2]		
FIA	200-level Drawing	3	3
	Literature electives	3	3
		18	**18**
Third Year			
DES 381	*Photographic Imaging III	3	
DES 383	*Electronic Imaging III	3	
DES 382	*Photographic Imaging IV **OR**		3
DES 384	Electronic Imaging IV		
DES or FIA	Required Studio Support[1]	3	3
ARH	Art History elective		3
	Science electives	3	3
	Humanities/Social Science elective[3]	3	
	Free elective		3
		15	**15**
Fourth Year			
DES 481, 483	*Photo Imaging V, VI **OR**	6	6
DES 482, 484	*Electronic Imaging V, VI		
DES or FIA	Studio electives[2]	3	3
	Humanities/Social Science electives[4]	3	3
	Free elective[5]	3	
	Free elective		3
		15	**15**
	Total credits::		**130**

*
Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

1
Studio Support Pool
(select two courses):

DES 221, 222
Illustration I, II

DES 351, 352
Graphic Design III, IV

DES 253, 254, 353, 354
Letterform I- IV

FIA 288
Photo Processes/Printmaking

DES 385
*Studio Photography

The substitution of a coherent sequence of courses drawn from disciplines represented across the UMass Dartmouth campus is possible, with written permission of the department chairperson. The listed courses may also be used as studio electives or free electives.

2
Studio Elective Pool (select six courses from the following, which might be offered at either the main campus or the New Bedford campus):

Any studios in the Artisanry area
Any studios in the Design area
Any studios in Fine Arts area

The following specific list is recommended for the selections, but not required:

DES 211
Color Studio

FIA 311
Composition and Design

DES 483,484
*Electronic Imaging V, VI

DES 481, 482
*Photographic Imaging V, VI

FIA 382
Advanced Printmaking: Screen Printing

FIA 288
Photo Processes/Printmaking

3
Philosophy 110
Introduction to Aesthetics
recommended.

4
At least one of these courses should be at the 300- or 400-level.

5
Art Education 200 Development of Visual Symbols recommended.

The Artisanry programs at UMass Dartmouth have earned a national reputation for excellence in craft education. Undergraduates in Artisanry may pursue BFA options in Ceramics and Jewelry/Metals. They may also major in Textile Design/Fiber Arts. A graduate degree, the MFA in Artisanry, offers specialization in Ceramics, Fibers, Metals, or Wood. Wood/Furniture is offered on the undergraduate level as an elective.

The educational philosophy of the Artisanry programs has evolved from the craft tradition of functional object making, emphasizing professional standards in technical skill and deign, knowledge of history of the craft, and personal aesthetic development.

Frequent presentations in each area by visiting artists, lecturers, and designers representing diverse fields supplement the artisanry student's education. Students are challenged to extend their creative involvement into the areas of object production, artistic expression, or design for industry. The goal is to instill the confidence and self-discipline necessary to sustain productive artistic careers.

The studio facilities, located at the university's New Bedford campus, contain state-of-the-art equipment and have ample work areas that encourage artistic development.

Ceramics Option

Ceramics at UMass Dartmouth balances between traditional and non-traditional work and encourages both sculptural and functional approaches. A variety of clay techniques and forming processes are taught, including hand-building, wheel-throwing, and slip-casting. Ceramics students learn how to use clay and glaze materials, to build and fire kilns, and to utilize the history of their craft. The Ceramics faculty encourages in its students individual exploration and professional goals.

Requirements

Semester Credits

		First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 291, 292	*Ceramics I, II	3	3
FIA 221, 222	Figure Drawing I, II	3	3
DES or FIA	Studio electives	3	3
DES or FIA	Studio electives	3	3
	Humanities/Social Science elective	3	
ARH 101	Ancient and Medieval Art		3
	English literature	3	3
		18	**18**
Third Year			
DES 391, 392	*Ceramics III, IV	3	3
DES	Required studio support[1]	3	3
DES or FIA	Studio electives	3	3
	Science electives	3	3
	Free electives	3	3
		15	**15**
Fourth Year			
DES 491, 492	*Ceramics V, VI	6	6
DES	Studio electives	3	3
	Humanities/Social Science electives	3	3
ARH	Art History elective	3	
	Free elective		3
		15	**15**
	Total credits:		**130**

*Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

[1]Studio Support Pool (select two courses):

DES 303	Ceramic Traditions
DES 304, 307	Clay and Glazes I, II
DES 305	Issues and Criticism in the Ceramic Arts
DES 306	Moldmaking
DES 308	Kiln Building

Jewelry/Metals Option

At UMass Dartmouth, Jewelry/Metals offers a comprehensive and diverse understanding of the technical and aesthetic potential of metal. Earlier studies feature skills for metal fabrication, construction, forming, and surface treatment, while later, more advanced studies explore such techniques as forging, casting, stone-setting, chasing/repousée, holloware, enameling, and die-forming. As students gain technical skills, they are encouraged to grow in expressive ability and to strive toward professionalism.

Requirements

Semester Credits

		First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 293, 294	*Jewelry/Metals I, II	3	3
FIA 221, 222	Figure Drawing I, II	3	3
DES or FIA	Studio electives	3	3
DES or FIA	Studio electives	3	3
	Humanities/Social Science elective	3	
ARH 101	Ancient and Medieval Art		3
	English literature	3	3
		18	**18**
Third Year			
DES 393, 394	*Jewelry/Metals III, IV	3	3
DES or FIA	Studio electives	3	
DES 395	Enameling		3
DES or FIA	Studio electives	3	3
	Science electives	3	3
	Free electives	3	3
		15	**15**
DES 491, 492	*Jewelry/Metals V, VI	6	6
DES or FIA	Studio electives	3	3
	Humanities/Social Science electives	3	3
ARH	Art History elective	3	
	Free elective		3
		15	**15**
	Total credits:		**130**

*

Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

Wood/Furniture Design Option*

Students of Wood/Furniture Design at UMass Dartmouth are artists in wood, who create furniture and related sculptural objects. They gain both technical knowledge and aesthetic concepts in a curriculum that covers such basic topics as design, freehand and mechanical drawing, a host of construction processes, and surface and finishing techniques. Then, advanced demonstrations are given in plywood construction, jigs, veneering, marquetry, tambour construction, and upholstery. Discussions of furniture history, business practices, and machine maintenance help instill professionalism. Wood/Furniture Design students become individual artists prepared in the various aspects of production, including crafts education, design for industry, and gallery exhibitions.

*
Freshman admissions have been suspended effective Fall 1993.

Requirements

Semester Credits

		First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 201, 202	Wood/Furniture Design I, II	3	3
DES or FIA	Studio electives	3	3
FIA 221, 222	Figure Drawing I, II	3	3
DES or FIA	Studio free electives	3	3
ARH 101	Ancient and Medieval Art		3
	Humanities/Social Science elective	3	
	English literature	3	3
		18	**18**
Third Year			
DES 301, 302	Wood/Furniture Design III, IV	3	3
DES or FIA	Studio electives	3	3
DES or FIA	Studio electives	3	3
	Science electives	3	3
	Free electives	3	3
		15	**15**
Fourth Year			
DES 401, 402	Wood/Furniture Design V, VI	6	6
DES or FIA	Studio electives	3	3
ARH	Art History elective	3	
	Humanities/Social Science electives	3	3
	Free elective		3
		15	**15**
	Total credits:		**130**

Textile Design/Fiber Arts Major
BFA degree

Requirements

Semester Credits

The Bachelor of Fine Arts in Textile Design/Fiber Arts balances woven and printed textile design for industry with fiber art for individual aesthetic expression. Courses in weaving introduce students to four-harness and multi-harness structures, multiple layered weaves, open weaves, dyed and painted warps, tapestry, and other techniques which allow the properties of color, fiber, texture and imagery to interact. Course in textile design introduce students to croquis pattern design and repeat formats in a wide range of rendering techniques, and surface de-sign on fabric including processes such as photo-silkscreen printing, immersion and resist dyeing, and block printing. All Textile Design/Fiber Arts courses encourage exploration of design ideas in combination with complex weaving and dyeing systems unique to textiles.

In each course, projects may be garments, rugs, upholstery, site-specific installations, yardage pieces, or designs to be included in a portfolio for industry. The InfoVision CAD system is being introduced to the curriculum, facilitating and extending the design process.

All textile design students also enroll in a basic sequence of textile technology courses which provide an additional introduction to industry production of woven fabrics and jacquard design. Summer or senior year internships with regional industry are encouraged.

Those interested in the Textile Design/Fiber Arts major may also be interested in the textile science majors offered through the College of Business and Industry.

		First	Second
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art	3	
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science electives	3	3
		17	**17**
Second Year			
DES 277, 278	*Textile Design I, II	3	3
DES 273, 274	*Weaving I, II	3	3
FIA 221, 222	Nature Drawing I, II	3	3
DES or FIA	Studio electives[1]	3	3
	Humanities/Social Science elective	3	
ARH 101	Ancient and Medieval Art		3
	English literature	3	3
		18	**18**
Third Year			
DES 377, 378	*Textile Design III, IV **OR**	3	3
DES 373, 374	*Weaving III, IV		
TET 225, 226	Design and Structure I, II	3	3
DES or FIA	Studio electives[1]	3	3
	Science electives	3	3
	Free electives	3	3
		15	**15**
Fourth Year			
DES 477, 478	*Textile Design/Weaving V, VI	3	3
DES 476, 479	*Senior Fibers I, II	3	3
DES or FIA	Studio electives[1, 2]	3	3
	Humanities/Social Science electives	3	3
ARH	Art History elective	3	
	Free elective		3
		15	**15**
	Total credits:		**130**

*Students in this program must complete the course(s) indicated with a grade of C or better; if a C- or lower is received, the course must be retaken.

[1]Studio Elective Pool (select six courses from the following, which might be offered at either the main campus or the New Bedford campus):

Any studios in the Artisanry area
Any studios in the Design area
Any studios in Fine Arts area

[2]Students may seek from their advisors approval to substitute an appropriate course or courses in Textile Technology.

Visual Design Courses

Unless noted in specific entries, all Visual Design courses are studios that meet two hours weekly for each credit offered.

Visual Design

DES 126 three credits
Art, Craft, and Popular Objects

Survey of the visual arts and consumer products from the 40s to the 80s. The objects we live with, use and wear reflect the beliefs, attitudes and tastes of the time. This course offers a survey of the development of the pop object, product design and craft media from World War II to the present. An overview of world events, art and architecture, political and social change will be included to provide context and chronology.

DES 211 three credits
Color Studio

A second-year course for students within the design department. Emphasis is on an exploration of major concepts of color use and theory for artists. Color pigments are used to achieve expressive variations in palettes.

DES 215 three credits
Structural Representation

Provides the student with experience in handling volume and spatial arrangements.

DES 216 three credits
Dimensional Design
Prerequisite: DES 215 or permission of instructor

For Art, Engineering and other students wishing to pursue projects in Public Art Proposals or in architectural, sculptural, or environmental settings. Multidisciplinary concept of design, technical drawing, site study, perspective renderings, structural and fabrication techniques are explored.

DES 317 three credits
Art of the Book
Prerequisites: Junior standing, any art major

Experimental approaches to bookmaking. Exploring conceptual attitudes will be combined with developing skills in bookbinding, paper-making, assorted printed processes and other related techniques.

DES 300 three credits
Concepts in Design

Offered as needed to present material in he design field. The specific topic is stated when the course is scheduled. May be repeated with change of content

DES 331 three credits
History of Design
3 lecture hours

A slide/lecture course covering the history of modern graphic design from the mid-1800s to the present. Aside from viewing the work, attention is given to the artists, their technical and esthetic contributions, and to the larger social, political and philosophical developments that are the content of this field.

Calligraphy

DES 213 three credits
Calligraphy I

The fundamentals of letterform as a language system and its graphic implications. Projects emphasize the visual relationships of formal and informal letterforms as affected by natural rhythms, line shape, texture and the integration of images and decoration. This course is open to any student of the university.

DES 214 three credits
Calligraphy II
Prerequisite: DES 213

Continuation of DES 213, an in-depth study of the five basic alphabet styles through design problems. This course is open to any student of the university.

DES 313 three credits
Calligraphy III
Prerequisite: DES 214

Continuation of DES 214, a study of lettering, type design, and calligraphy. This course is open to any student of the university.

DES 314 three credits
Calligraphy IV
Prerequisite: DES 313

Continuation of DES 313. This course is open to any student of the university.

Graphic Design

DES 251 three credits
Graphic Design I
Prerequisites: ART 114, 115

Translation of fundamental visual design concepts into the more specific concepts of communications design. The varied projects are intended to introduce both contemporary and traditional skills and methods. Graphic design is approached as a *process* that combines aesthetic, intellectual, and technical components.

DES 252 three credits
Graphic Design II
Prerequisite: DES 251

Continuation of DES 251.

DES 351 three credits
Graphic Design III
Prerequisite: DES 252

An intermediate-level course for the professionally oriented student. The design process is further emphasized through projects that explore graphic imagery and the interrelationship between word and image. The importance of language to the designer is also stressed; development of the student's writing skills are encouraged hand-in-hand with the development of design skills.

DES 352 three credits
Graphic Design IV
Prerequisites: DES 351, 254

Continuation of DES 351.

DES 451 six credits
Graphic Design V
Prerequisite: DES 352

Preparation for professional work in the field of graphic design. Assignments continue to introduce a variety of directions such as: publications design, packaging, public relations, environmental elements, communications problems, and systems design. At the same time the student's conceptual and perceptual skills are sharpened and channelled toward portfolio quality work.

DES 452 six credits
Graphic Design VI
Prerequisite: DES 451

Continuation of DES 451.

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

Photographic/Electronic Imaging

DES 281 three credits
Photographic Imaging I

A survey of the theory of black and white photography. Emphasis will be on darkroom experience, including the development of film, contact and enlargement printing. This course is open to any student of the university. It is a prerequisite for Electronic Imaging III.

DES 282 three credits
Photographic Imaging II
Prerequisite: DES 281

Continuation of DES 281 with emphasis on development of photographic printing skills, professional presentation, and exploration of contemporary means of photographic expression. This course is open to any student of the university. It is a prerequisite for Electronic Imaging III.

DES 283 three credits
Electronic Imaging I

Presents the skills necessary to construct complex and detailed montages and collages using the digital medium. Students will experiment with color correcting and retouching of digitized photographs, and will be introduced to the vast range of effects associated with electronic imaging.

DES 284 three credits
Electronic Imaging II
Prerequisite: DES 283

Continuation of DES 283.

DES 332 three credits
History of Photography
3 lecture hours

Survey, through lecture and audio-visual presentation of the development of technical and aesthetic concerns in photography from its origins to the present. Special attention will be paid to the impact of historic events on the aesthetic considerations of the day. This course is open to any student of the university.

Unless noted in specific entries, all Visual Design courses are studios that meet two hours weekly for each credit offered.

DES 381 three credits
Photographic Imaging III
1 1/2 hour lecture, 3 hours laboratory
Prerequisite: DES 282

The development of a personal approach to photography as well as application of techniques used in applied photography, integrated in a series of projects involving multiple image printing, use of high contrast film, and large format camera work. This course is open to any student of the university.

DES 382 three credits
Photographic Imaging IV
1 1/2 hour lecture, 3 hours laboratory
Prerequisite: DES 381

Continuation of DES 381 with further exploration of experimental techniques and their application to applied and personal photographic statements. A brief survey is made of the history of photography.

DES 383 three credits
Electronic Imaging III
Prerequisites: DES 281, 282

Exploration in depth of the concepts of change, transformation, and visual rhythm. The student will be introduced to two dimensional computer paint and animation programs, image-processing technology as well as basic storyboarding. The history of animation and its relationship to other media will be explored through required readings and seminar style discussion. Students will produce a number of still and animated pieces.

DES 384 three credits
Electronic Imaging IV
Prerequisite: DES 283

Continuation of DES 383. Three-dimensional computer animation skills will be the focus of this class. In-depth studies of natural forms and their associated motions will be emphasized along with discussions of time, space, color, and light. Storyboarding, lighting, and editing techniques will be introduced along with a variety of readings on the political and social role electronic media have played in contemporary society. Students will produce a number of short animations related to these technical areas as well as an in-depth final production.

DES 385 three credits
Studio Photography
Prerequisites: DES 281, 282
3 hours laboratory; studio demonstrations, print and slide presentation three hours

Professional methods of photographing two and three dimensional objects in black and white, and color. Lighting techniques utilizing daylight, quartz lights and electronic flash are studied. Film formats from 35 mm to 4x5 are used to produce prints and transparencies. Effective use of simple studio props is studied.

DES 481 six credits
Photographic Imaging V
3 hours lecture/6 hours laboratory
Prerequisite: DES 382

An intensive study of advanced techniques used in contemporary photography. Emphasis is placed on the development of a personal fine-arts photographic approach coupled with professional esthetic standards. This course is open to any student of the university.

DES 482 six credits
Photographic Imaging VI
3 hours lecture/6 hours laboratory
Prerequisite: DES 481

Continuation of DES 481 with an emphasis placed on the preparation of a professional photographic portfolio. This course is open to any student of the university.

DES 483 six credits
Electronic Imaging V
Prerequisite: DES 384

Basic skills for the construction of interactive electronic book, and media presentations. The combination of animation, text, images and sound will be central to the technical component of this class. In addition to providing hands-on skills and methodologies, this course emphasizes the solving of a wide range of communication problems as well as the development of the student's individual vision.

DES 484 six credits
Electronic Imaging VI
Prerequisite: DES 483

Production by students of high-quality senior level projects and portfolios. Students may work in the areas of still imaging, computer animation, or interactive media. A variety of readings addressing the political and social role electronic media have played in contemporary society will be read and discussed.

Illustration

DES 221 three credits
Illustration I
Prerequisites: 110, 112

An introduction to illustration focusing on drawing and composition as they relate to the special needs of the illustrator; an exploration of the tools, techniques, and surfaces commonly used in illustration, with emphasis on black and white media.

DES 222 three credits
Illustration II
Prerequisite: DES 221

Continuation of DES 221 focusing on color media, with an introduction to concepts for illustrators. The course also includes a review of procedures used in gathering reference material for illustration, and a slide survey of the history of illustration.

DES 321 three credits
Illustration III
Prerequisite: DES 222

Through specific projects, students are introduced to a wide range of specialized areas within the illustration field. This course also includes in-depth exploration of concepts for illustrators and slide surveys of both contemporary illustration and the work of fine artists who have influenced illustration.

DES 322 three credits
Illustration IV
Prerequisite: DES 321

Continuation of DES 321 with increasing focus on the student's individualized area of interests and the tools and techniques most appropriate to that area.
This course also includes guest lecturers by professional illustrators.

DES 323 three credits
Fashion Illustration I
Prerequisites: ART 110, 112

Learning to draw the fashion figure. Includes intensive drawing from clothed models, fashion photos and prototypes. Rendering skills to be developed by working from a wide variety of clothing and accessories as well as through experimentation with painting and illustrational techniques. Includes female, male and children's fashion illustration. Attention will also be given to the composition of the total fashion ad, with layout assignments dealing with the relationship of figure to type.

DES 324 three credits
Fashion Illustration II
Prerequisite: DES 323 or permission of instructor.

Continuation of DES 323.

DES 421 six credits
Illustration V
Prerequisite: DES 322

Students develop their individual strengths and interests to bring technical and conceptual skills to a professional level and to define a personal style. This course also includes projects which will result in printed work, and frequent guest lectures.

DES 422 six credits
Illustration VI
Prerequisite: DES 421

Continuation of DES 421. Each student designs and executes a long-term project in his or her particular area of interest in order to build a consistent, professional-level portfolio. Self promotion and business aspects of the illustration field are explored.

Letterform

DES 253 three credits
Letterform I

This course includes both a studio and a lecture component. The lectures trace the development of the alphabet, written and drawn, from primitive times, through the invention of printing from movable type, to the present. The studio component further sensitizes the student to t he continuing evolution of letterforms through a series of exercises and projects. Note: The structure of Letterform I and II makes it possible for the student to take either course first. This course is open to any student of the university.

DES 254 three credits
Letterform II

Continuation of the lecture survey while the studio brings the student fully into the modern era with an introduction to typographic systems and computer typesetting. Note: The structure of Letterform I and II makes it possible for the student to take either course first. This course is open to any student of the university.

DES 353 three credits
Letterform III
Prerequisites: DES 253, 254
The student engages in typographic design projects on an advanced level. Emphasis is placed on effective communication as well a aesthetic values.

DES 354 three credits
Letterform IV
Prerequisite: DES 353

Continuation of DES 353. This course solves more complex concerns of design communication, within the confines of typography. A full spectrum of problems that one may encounter in graphic communication are attempted.

Unless noted in specific entries, all Visual Design courses are studios that meet two hours weekly for each credit offered.

Ceramics

DES 453 six credits
Letterform V
Prerequisite: DES 354

Students work with expressive and experimental approaches to typographic design in this upper level course. Students are encouraged to aim for a sophisticated, personal portfolio which will prepare them for entry into the rapidly emerging profession of typography.

DES 454 six credits
Letterform VI
Prerequisite: DES 453

Continuation of DES 354.

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

DES 291 three credits
Ceramics I
Prerequisite: Foundation courses for majors; no prerequisite for non-majors.

Clay as a material for making art. A variety of handbuilding and forming techniques will be explored through the context of making objects. Clay, slip, glaze, and various firing methods will be presented.

DES 292 three credits
Ceramics II
Prerequisite: Foundation courses for majors; no prerequisite for non-majors.

The potter's wheel as the primary forming tool in making pottery. Utility and function will be the primary intention, using the formed vessel as a means of expression. Clay bodies, slips, glazes, and firing methods will be presented.

DES 303 three credits
Ceramic Traditions
3 hours lecture

The individual artists and philosophies responsible for the development of 20th-century American studio ceramics. Contemporary ceramics and its relationship with technical, historical, and philosophical concerns will be presented.

DES 304 three credits
Clay and Glazes I
Prerequisite: DES 291, 292; or permission of instructor

Individual clays, clay body formulation, and engobes. Various physical properties of clay materials that determine color, firing temperature, and plasticity will be discussed, along with the formulation of specific clay bodies for a variety of forming methods and firing techniques.

DES 305 three credits
Issues and Criticism in the Ceramic Arts
Prerequisite: DES 291, 292; or permission of instructor
3 hours lecture

An exploration of the ways in which ceramic artists throughout history have used their medium to create a broad range of utilitarian and symbolic forms. The course will concentrate on the aesthetic principles inherent in the ceramic arts.

DES 306 three credits
Moldmaking
Prerequisites: DES 291, 292; or permission of instructor

The fundamentals, information, and skills necessary to make a variety of molds used in the ceramic process. The casting and forming methods available to ceramists through plaster and other materials will be explored.

DES 307 three credits
Clay and Glazes II
Prerequisites: DES 291, 292, 304; or permission of instructor

The physical properties of glaze materials used in the ceramic process. Through lectures and lab assignments, students will learn to translate technical information into visual and tactile objects while exploring glaze surface, color, and transparency.

DES 308 three credits
Kiln Building
Prerequisites: DES 291, 292; or permission of instructor

The information and skills necessary to design and build a variety of ceramic kilns. Discussion will include fuel sources, burner design, and combustion needs for these fuels, and how these factors affect kiln design.

*
Student majors are required to take the 300- and 400-level courses in their majors for six credits. Work will be adjusted accordingly.

Jewelry/Metals

DES 391 three credits
Ceramics III
Prerequisite: DES 292

Exploration of the many possibilities of clay. Students will develop a variety of ideas using handbuilding, wheel-thrown, and slip-cast molds as forming methods. Issues related to sculpture and their translation to the ceramics medium will be discussed.

DES 392 three credits
Ceramics IV
Prerequisite: DES 391

Using the technical knowledge acquired in previous semesters, students will develop a personal aesthetic direction. Students will be challenged to explore the large range of possibilities within the field of ceramics as it applies to their personal goals.

DES 491 three or six credits *
Ceramics V
Prerequisite: DES 392

Encourages advanced students to develop further their personal artistic vision, to be self-critical, and to challenge aesthetic concerns and concepts. Each student will present an oral report on a major artist who was influential in his or her development.

DES 492 three or six credits *
Ceramics VI
Prerequisite: DES 491

During this final semester, students develop and present a body of work in the form of a senior thesis. As part of this presentation, a 45-minute slide lecture is given, relating their artistic ideas, influences, work, and future goals.

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

DES 293 three credits
Jewelry and Metals I
Prerequisite: Foundation courses for majors; no prerequisite for non-majors.

The basic properties and characteristics of metal. Projects involve learning to saw, form, fabricate, and finish various metals and will include simple stone settings.

DES 294 three credits
Jewelry and Metals II
Prerequisite: DES 293 for majors; permission of instructor for non-majors.

A more in-depth study of the properties and characteristics of metal through casting, moldmaking, etching, forging, and sinking shallow forms. Projects using cast forms, multiple elements, simple mechanisms, and functional utensils will be assigned.

DES 393 three credits
Jewelry and Metals III
Prerequisite: DES 294

Detailed study of holloware techniques with raising and seamed construction. Projects will be conducted using chasing/repousse, stone setting, aluminum anodizing, and more advanced mechanisms.

DES 394 three credits
Jewelry and Metals IV
Prerequisite: DES 393

Further exploration of metal form through machining methods, spinning, and electroforming. Projects of a more comprehensive nature will be conducted using previously-learned processes and techniques.

DES 395 three credits
Enameling
Prerequisite: DES 293 or permission of instructor

The techniques and processes for applying vitreous enamels to metal. Students will be expected to view enameling as a means for incorporating color into their existing knowledge of metalworking.

DES 493 six credits
Jewelry and Metals V
Prerequisite: DES 394

Senior-level metalwork requires the development of a contract plan for intensified, self-directed study in conjunction with the faculty. The student shall pursue building a body of work which extends technical proficiency and establishes a firm personal aesthetic.

DES 494 six credits
Jewelry and Metals VI
Prerequisite: DES 493

Continuation of contract plan study. The objective of the final semester is to complete a concise, cohesive body of work which will culminate with an exhibition.

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

Unless noted in specific entries, all Visual Design courses are studios that meet two hours weekly for each credit offered.

Textile Design/Fiber Arts

DES 273 three credits
Weaving I: Introduction to the 4-Harness Loom

Introduction to weaving on the 4-harness floor loom. Design for weaving will focus on color, fiber and pattern investigation. Color-and-weave techniques, twill and overshot patterns, and basic tapestry techniques will be used for woven samples and functional products such as scarves, garments and upholstery. Supplementary design and drafting will be done on computer in the Textile Design/Fiber Arts CAD Lab.

DES 274 three credits
Weaving II

Further study of weaving techniques on the 4-harness loom including textural weaves, overshot techniques, and double weave along with discussion of design elements including variable spacing, scale changes, color and imagery. The CAD weave system will be used for pattern drafting exploration. Projects will include functional objects as well as design board presentations for industry portfolio.

DES 275 three credits
Creative Weaving
For non-majors only

An *open university elective* to introduce weaving on the 4-harness floor loom. Patterns such as twills, plain weave, inlay, overshot, and other surface effects will be used in combination with a variety of fibers to produce samples and projects in the form of garments or other functional textiles.

DES 277 three credits
Textile Design I: Introduction to Print and Dye Techniques

Introduction to fabric dyeing and printing techniques such as immersion dyeing, resist dyeing including batik and paste resist, block print and screen print. Proper use of dyes and dyelab equipment will be presented according to required health and safety guidelines. Samples of various technical experiments will be matted for presentation or logged in a research sketch book. Functional and non-functional formats will be explored for projects. Basic sewing machine techniques will be introduced. (Formerly DES 272, Textile Design II)

DES 278 three credits
Textile Design II: Introduction to Croquis and Repets

Introduction to pattern design on paper including specific rendering techniques such as gouache painting, luma dye, and ruling pen and their use in the textile design industry will be presented. A categorized clippings source book of design and color ideas will be compiled by each student. Projects will include CAD color palette generation and gouache color matching, painted repeats and coordinating needlework craft projects. (Formerly DES 271, Textile Design I)

DES 309 three credits
Textile Styling: Costume
Prerequisite: DES 278 or permission of instructor

Concentrating on garment construction, traditional and fantasy body coverings will be designed using a wide variety of materials. The concept of costume as body ornament is emphasized. Sewing ability not required.

DES 310 three credits
Resist Dyeing
Prerequisites: DES 277 or permission of instructor

Exploration of resist dyeing techniques with emphasis on Japanese and West African traditions and their application to contemporary textile expression. Tied, stitched, wrapped, fold, and clamp techniques as well as paste resists and discharge are investigated. An indigo dye vat is made and maintained. Course is open to students with basic understanding of surface design and dyeing, including majors and non-majors.

DES 370 three credits
History of Woven Textiles

A survey of woven textiles from ancient times to the industrial revolution, concentrating on major textile producing regions and the significance of textiles in the life of each culture. This course is designed to broaden the perception of contemporary textiles and fiber art by investigating a wealth of woven traditions. Students will be required to do a research project and slide presentation.

DES 373 three credits
Weaving III

Samples of multi-harness weave structures concentrating on dimensional surface effects, scale and color changes, and suitable constructions for industry production, with focus on the contrasting properties and characteristics of natural wool fibers and man-made fibers. Samples will be matted for portfolio presentation. Major projects will include upholstery products and functional woolens. CAD system weave program will be used for weave and yarn design and pattern drafting.

DES 374 three credits
Weaving IV

Multi-layering, dyed and painted warps, and supplementary warp and weft techniques for dimensional and compositional purposes. Using eight to sixteen-harness looms students will develop projects concerned with creative solutions to functional objects and fiber art installations. The CAD jacquard project program will be introduced for one additional design project.

DES 375 three credits
Woven Imagery three credits
Prerequisite: DES 273 or permission of instructor

Various methods of applying color and image to the warp before it is woven. Dip dyeing, ikat resist, discharge, and painted warps will be covered. Weave structures will be chosen to interact with the dyed warps and wefts. Course is open to students with a basic understanding of 4-harness weaving, including majors and non-majors.

DES 376 three credits
History of Dyed Textiles
3 lecture hours
Prerequisite: DES 278 for majors; permission of instructor for non-majors

A survey of textile forms and their social/cultural integration from ancient cul-tures to the industrial revolution. This course is designed to broaden the perception of current textile trends by investigating the wealth of printed and dyed techniques both utilitarian and decorative. Students will research and prepare an in-class or written presentation.

DES 377 three credits
Textile Design III: Croquis and Rendering Techniques

Croquis and repeat design on paper from floral and historical sources, including paisley and toile, and from personal design concept derived from ongoing sketchbook, nature drawings and clippings files. Focus will be on rendering styles in gouache, cut paper, water color effects, luma dye and computer-generated effects. The CAD print system will be used for design clean-up, colorings, and new palette creation with color matching in gouache. In addition, needlework and stitchery techniques will be explored as spin-off design projects. (Formerly DES 372, Textile Design IV)

DES 378 three credits
Textile Design IV: Screen Print on Fabric

The process of photographic silk screen printing for repeat pattern designs on fabric is used to develop printed textiles. A variety of fabric and dye types will be used to explore repeat pattern ideas based on personal research and nature drawings. The print CAD print program will be used for color separation, repeat unit trials, and colorings. Individual repeat units will be used for portfolio presentations, and final projects will be in the form of printed yardage fabrics. (Formerly DES 371, Textile Design III)

DES 476 three credits
Senior Fibers I: Fiber Art Thesis

A body of work will be developed to address current issues in fiber art. Traditional and ethnic surface design and dyeing techniques, such as shibori and indigo, will be introduced as vehicles for artistic ideas. Students can choose from a variety of print, dye, woven or mixed media techniques solve each project. Technical samples will be matted for inclusion in portfolio. Projects will be prepared for formal graduation exhibition at the end of the final spring semester. (Formerly 470, Senior Fibers II)

DES 477 three credits
Textile Design V/Weaving V: Portfolio

The development of appropriate design work in print, paint, or woven media with significant additional work in embroidery, quilting, and other surface embellishment techniques as portfolio coordinates. First half of the semester will be used to explore design sources including documentaries of historical and ethnic textiles, sources from nature, and conversational subject. CAD print, woven and 3-D rendering systems will be used during the second half of the semester to develop colorways and coordinate work for multiple design board presentations focusing on personal idea development, culminating in a major portfolio review at the end of the semester. (Formerly DES 472, Textile Design VI)

DES 478 three credits
Textile Design VI/Weaving VI: Portfolio

Continuation of work concentrating on the development of design work in print, paint, or woven media with significant additional work in needlework and surface embellishment techniques for portfolio coordinates. Design sources including florals, historical and ethnic subjects will be explored. CAD programs will be used to generate or enhance personal ideas in the development of the final portfolio. (Formerly DES 471, Textile Design V)

DES 479 three credits
Senior Fibers II: Fiber Art Thesis

Students develop a body work in various fiber art media describing a personal style and aesthetic. Sources of inspiration will include historical and contemporary textiles. Projects range from site specific installations to innovative functional objects. Work will be prepared for formal graduation exhibition to be held at the end of the semester. (Formerly 475, Senior Fibers I)

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

DES 201 three credits
Wood/Furniture Design I
3 studio hours

Introduction to wood as a material and the proper use of hand tools and woodworking machinery, focusing on box construction techniques and appropriate joinery techniques.

DES 202 three credits
Wood /Furniture Design II

Continuation of DES 201 focusing on table construction techniques and simple finishing methods.

DES 301 three credits
Wood/Furniture Design III
Prerequisite: DES 202 or permission of instructor

An intermediate-level course focusing on furniture design concepts and construction methods, including carcase and frame techniques.

DES 302 three credits
Wood/Furniture Design IV
Prerequisite: DES 301 or permission of instructor

Continuation of DES 301, focusing on chair-making techniques from both a conceptual and a traditional viewpoint.

DES 401 six credits
Wood/Furniture Design V
Prerequisite: DES 302

An advanced-level course continuing practices in furniture design concepts and construction methods, focusing on large-scale furniture projects, and emphasizing the use of plywood and related fabricated material, veneering techniques, and advanced finishing methods—as well as the design applications appropriate to these processes.

DES 402 six credits
Wood/Furniture Design VI
Prerequisite: DES 401

Continuation of DES 401. Lectures and presentations will address issues in professional practice. Upon acceptance of a project proposal, students present a body of work in the form of a senior thesis.

DES 495
Independent Study

DES 496
Directed Study

DES 900
Contract Learning

Graduate Courses in Visual Design/Artisanry

Note: Undergraduates are prohibited from taking graduate courses. The official list of graduate courses is published in the Graduate Catalogue.

ARH 500 three credits
Topics in Art History

An introduction to art historical methodology with application to studio problems. Oral reports and research papers are required.

ART 505 three credits
Graduate Seminar 1

A forum for exploring issues in contemporary art and design, and for learning from peers about recent developments in a variety of art fields. A broad range of critical writings are discussed.

ART 506 three credits
Graduate Seminar 2

Continuation of ART 505.

ART 509 nine credits
Major Graduate Studio

Intensive studio work and research in the student's area of concentration. Students investigate the aesthetic, conceptual, technical, and structural properties of chosen media through an individualized study program developed under the guidance of their major advisors.

ART 510 nine credits
Major Graduate Studio

Continuation of ART 509.

ART 511 three credits
Major Graduate Studio

Continuation of ART 510.

ART 512 six credits
Visual Thesis

The preparation of a body of conceptually focused, original, and innovative visual work for exhibition or presentation.

ART 515 three credits
Writing Seminar

Organizational tools for thesis preparation are suggested, and theses of recent graduates and other writings are analyzed in terms of content and style. Writing begins with a revision of the thesis proposal as the introduction to the thesis. A preliminary draft of the thesis is prepared by the end of the semester. Significant class time is devoted to group critiques of student writing.

ART 516 three credits
Written Thesis

The completion of the written thesis, a verbal explanation of the visual thesis which includes research of sources and a discussion of pertinent aesthetic issues, materials, and processes.

ART 520 three credits
Philosophy of Art

Themes to be discussed include the nature of form and expression in art, the similarities and differences between the artist's relation to the work of art and the spectator's, the difference between linguistic and visual arts, and the social function of art. The works of a few major philosophers will be compared to demonstrate alternative points of view.

ART 590 three credits
Instructional Development
Prerequisite: Graduate standing

Provides the fundamental knowledge needed to develop course content, curriculum development, and project planning for studio classes taught in the foundation program.

ART 595 one to nine credits
Independent Study

ART 596 one to nine credits
Directed Study

Fine Arts

In Fine Arts, we do not teach artists; rather we teach students to become artists. Our programs are structured on the belief that every artist speaks a common language. Our goals are:

•
to prepare students to become professional practitioners in the disciplines of painting, printmaking, or sculpture, as well as equip them for other art-related careers, by offering high quality education and training in the visual arts

•
to give students a thorough understanding, appreciation, and competence in drawing from life through a rigorous four-year drawing requirement which emphasizes and underscores the importance of drawing skills as universal to all visual arts disciplines

•
to encourage students to pursue their personal directions in art, based on a firm grounding in the fundamentals of their field

•
to provide those students who wish to continue their education at the graduate level with qualifications for entry and the values which will contribute to their success

Our ultimate objective is to develop respect for learning and the creative act, to enable our graduates to contribute to human culture with confidence and authority.

Faculty and Fields of Interest

Richard J. Creighton sculptor

Willoughby R. Elliott painter, printmaker

Severin Haines painter

Laurie Kaplowitz painter

Anne Leone painter/foundation coordinator

Eric Lintala sculptor

Bryan McFarlane painter

Anthony J. Miraglia (chairperson) painter

Marc St. Pierre printmaker/ photographer

Kurt Wisneski printmaker

Majors in Painting, Printmaking, and Sculpture BFA degree

The Department of Fine Arts offers three majors: Painting, Printmaking, and Sculpture. Students who choose one of these disciplines enter a rigorous, four-year program. As its foundation, each major has a structured, sequential drawing requirement which provides a rich visual vocabulary and a basis for visual problem solving. The department teaches the fundamental principles and skills of each discipline, enabling students to ac-quire the knowledge needed to produce a coherent, personal body of creative work.

Painting, Printmaking, and Sculpture students have space, facilities, and equipment which places the programs among the more desirable ones in the country. Juniors and seniors work in private studio areas. Each student receives individual attention from faculty committed to teaching excellence as well as the critical support which comes from working within a group. Students know that their instructors are activeand respected artists who bring first-hand, up-to-date knowledge to their studios. Academic excellence is recognized annually by department and college awards.

Fine Arts also has an active Visiting Artist Program which brings well-known artists to the university on a regular basis to discuss their work, conduct workshops, and assess developments in the art world. The Department and College host or participate in many on and off-campus exhibitions. These experiences prepare students to enter the competitive, exciting world of the visual arts with confidence.

Requirements for Painting, Printmaking, and Sculpture Majors

		Semester Credits	
		First	**Second**
First Year			
ART 100, 101	Visual Arts Freshman Colloquium	1	1
ART 110, 112	Foundation Drawing I, II	3	3
ART 114, 115	2D Workshops I, II	2	2
ART 124, 125	3D Workshops I, II	2	2
ARH 102	Renaissance to Modern Art		3
ARH 103	Development of Modern Art		3
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Social Science Electives	3	3
		17	**17**
Second Year			
FIA 221, 222	Figure Drawing I, II	3	3
ARH 101	Ancient and Medieval Art	3	
	Major Studio	3	3
	Studio Electives	3	3
	Humanities/Social Science Elective	3	
	Studies in Literature	3	3
		15	**15**
Third Year			
FIA 311	Composition	3	
FIA 321, 322	Figure Drawing III, IV	3	3
	Major Studio	6	6
	Studio Electives	3	3
	Natural Science	3	3
	Studio or Free Elective		3
		18	**18**
Fourth Year			
FIA 421,422	Drawing V, VI	3	3
	Major Studio	6	6
	Studio Elective	3	
	Humanities/Social Science	3	3
	Art History Elective (either semester)	3	
	Senior Seminar		3
		18	**15**
	Total credits:		**133**

Specific Requirements for the Different Majors

A minimum of one History of Art elective (3 credits) must be taken following the required ARH 101, 102, and 103. Students are urged to take as much Art History as possible.

Sculpture is required one semester for Painting majors. Painting is required one semester for Sculpture majors.

Printmaking majors are required to take two semesters of painting and complete all 200-level printmaking courses before taking 300-level printmaking courses.

Painting and Printmaking majors take ARH 345 Development of Modern Painting. Sculpture majors take ARH 346 Development of Modern Sculpture.

Distribution Requirements

Credits in the categories listed may be selected as follows.

Humanities: Art History (strongly recommended), literature (English or Foreign Language), History, Philosophy, Math or Computer Science, or Music.

Natural Sciences: Biology, Chemistry, Physics; or other areas with the approval of the Fine Arts department chairperson.

Social Sciences: Economics, Political Science, Psychology, Sociology.

Secondary Concentrations in Painting, Printmaking, and Sculpture for Students in Other Visual Arts Majors

Requirements

Accumulation of 15 studio credits in one of the following: Painting, Sculpture, Printmaking, or Drawing. Foundation courses cannot be applied toward the secondary concentration.

Unless noted in specific entries, all courses are studios that meet two hours weekly for each credit offered.

FIA 221, 222 three credits each
Figure Drawing I, II
Prerequisites: ART 110, 122

The human figure, its form, mass, and proportions, is studied in relation to its environment. Live models are used.

FIA 223, 224 three credits each
Nature Drawing I, II
Prerequisite: ART 112

Problems in drawing based on direct observation of flowers, plants, and other natural forms.

FIA 225 three credits
Object Drawing I
Prerequisite: ART 112

Explores a variety of problems involved in drawing natural as well as artificial objects and perspective.

FIA 241, 242 three credits each
Painting I, II
Prerequisite: ART 112

This is an introductory course in beginning painting. The technique of oil is predominant; however, other plastic media are also considered. Concepts of design, composition, and color are studied. The development of the intuitive and creative ability of the individual is given careful attention.

FIA 243 three credits
Watercolor

An introduction to the medium of water color from initial conception to final image. There will be intensive personal experimentation with techniques.

FIA 281 three credits
Printmaking I: Silkscreen
Corequisites: FIA 221 and 241

A studio course in silkscreen, in which various stencil-making processes will be introduced. Color and shape relationships, as well as artistic values and techniques will be stressed.

FIA 283 three credits
Printmaking I: Intaglio
Corequisites: FIA 221 and 241

A studio course in the techniques of intaglio. Artistic values as well as techniques will be stressed.

FIA 285 three credits
Printmaking I: Lithography
Corequisites: FIA 221 and 241

An introduction to the printmaking process of lithography on stone, and aluminum plate. The development of artistic values as well as technical facilities will be stressed.

FIA 286 three credits
Printmaking II
Prerequisites: FIA 283, 285

Continuation of sophomore studies in printmaking (etching and lithography). This course builds on first semester lithography and etching printmaking and applies that basic knowledge on advanced concepts.

FIA 288 three credits
Photo Processes and Printmaking
Prerequisites: ART 100, 112, 114, 115

Methods of image-making and producing multiples using non-silver processes. Students will explore the use of positive and negative transfer materials affecting non-silver print processes and will be expected to expand upon the problems introduced in traditional photography and printmaking classes. No camera required.

FIA 291 three credits
Sculpture I
Prerequisite: Sophomore art major standing or permission of department

A structured introduction to basic techniques including clay modeling from the figure, used of plaster, wood, welding, mold making, and casting. The course is meant to enable the beginning student to explore media and gain fundamental skills with them. Occasional slide talks. Content, form and technique are discussed in relation to the work.

FIA 292 three credits
Sculpture II

Continuation of FIA 291.

FIA 300 three credits
Advanced Color Theory
Prerequisites: ART 114, 115

This studio course discusses the work of major color theorists and applies their theories in a series of class assignments. The course proceeds with regular weekly lectures illustrated by slides and reproductions. All classwork is reviewed in weekly critiques. The theorists discussed include Munsell, Ostwald, Itten, Albers and others. Also discussed are structural usage of color, color psychology, color history, color in modern art and the various color media.

FIA 310 three credits
Visual Language of Art
3 lecture hours

Provides the student with a basis for evaluation of paintings and sculpture through the use of slides, basic problems, lectures, and discussions.

*Student majors are required to take any of the 300- and 400-level courses in their majors for six credits. Work will be adjusted accordingly.

FIA 311 three credits
Composition and Design
Prerequisites: FIA 222, 242

An advanced consideration of design principles is applied to weekly assigned drawing problems. Resourcefulness in technical treatment and imaginative approach are encouraged.

FIA 312 three credits
Composition

Continuation of FIA 311.

FIA 321 three credits
Figure Drawing III
Prerequisite: FIA 222

Continuation of Figure Drawing I with more attention given to composition and individual approaches. New techniques and media are introduced.

FIA 322 three credits
Figure Drawing IV

Continuation of FIA 321.

FIA 341 three credits
Painting III
Prerequisites: FIA 222, 242

Intermediate painting problems related to the individual, aimed at improving the student's ability to compose in a professional manner. The student works from the figure, nature, and still life with an emphasis toward his/her personal development.

FIA 342 three credits
Painting IV

Continuation of FIA 341.

FIA 380 three credits
Relief Printmaking

Construction of images by printing from various surfaces. Traditional woodcuts are featured as well as experiments with other possibilities of "Relief Type" surfaces.

FIA 381 three or six credits*
Advanced Printmaking
Prerequisites: FIA 222, 281, 283, 285

A studio course aimed at developing a high degree of technical articulation with printmaking techniques of the students' choice as they relate to the image making process.

FIA 382 three or six credits*
Advanced Printmaking: Screen Printing

Continuation of FIA 381.

FIA 391 three or six credits*
Sculpture III
Prerequisite: FIA 292

A course designed for those having a deeper interest in sculpture. Intended to deepen and refine skills in one or more media. The beginning of the student's development of a sculptural idea in an open workshop. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

FIA 392 three or six credits*
Sculpture IV

Continuation of FIA 391.

FIA 400 three credits
Senior Seminar
3 lecture hours

Prepares the student in Fine Arts for the field they will be entering. The course deals with portfolio preparation, resumes, contracts, and the business aspects of the art world.

FIA 421 three credits
Drawing V
Six studio hours
Prerequisite: FIA 322

A drawing course intended to help the student correlate previous drawing experiences. More emphasis is placed on individual expression and interpretation.

FIA 422 three credits
Drawing VI

Continuation of FIA 421.

FIA 441 three or six credits*
Painting V
Prerequisite: FIA 342

Advanced problems in painting with emphasis on personal development. There are individual criticisms and seminar discussions of contemporary problems in painting.

FIA 442 three or six credits*
Painting VI
Prerequisite: FIA 441

Continuation of FIA 441 with the student gradually working more independently. Criticisms applied even more on an individual basis.

FIA 481, 482 three or six credits each*
Printmaking III
Prerequisite: A minimum of 15 credits in printmaking

An advanced studio course in printmaking aimed at the further development of a professional attitude toward the printmaking techniques as a means of artistic statement.

FIA 491 three or six credits*
Sculpture V
Prerequisite: FIA 392

A studio course stressing individual concentration with sculptural media and processes for the advanced student. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

*Student majors are required to take any of the 300- and 400-level courses in their majors for six credits. Work will be adjusted accordingly.

FIA 492 three or six credits*
Sculpture VI

Continuation of FIA 491. Students who are majoring in sculpture can register for six (6) credits. The work required will be adjusted accordingly.

FIA 495
Independent Study

FIA 496
Directed Study

FIA 900
Contract Learning

Music

Music Major BMus Degree

The Bachelor of Music degree allows intensive study in various areas of applied music and theory. All majors complete a core curriculum of music theory, music history, musicianship, and functional piano. There are also opportunities for more specialized studies, such as electronic music.

Graduates of the major program have a variety of avenues open to them, from teaching and performing to advanced study and careers in related fields. The department is also strongly interested in developing interdisciplinary programs for those whose needs are best met by a liberal arts background with a concentration in music, including education.

Faculty and Fields of Interest

Robert T. Adams composition, electronic music, music theory

Eleanor Carlson (chairperson) piano, music history

Josef Cobert flute, music history, conducting, orchestra

Vincent F. Luti theory, composition, music history

Barbara H. Noel musicology

Entrance to the Major

All candidates must pass an entrance audition and take an advisory exam to determine their potential and background in music. Candidates are expected to have some facility on their instrument and, especially in the case of theory candidates, to have some preparation in fundamental concepts of music theory.

Distribution Requirement

Music majors are subject to the following distribution requirements:

Critical Writing and Reading I, II: six credit hours (ENL 101, 102)

Foreign language: six credit hours. Credits may be taken in Italian, French, or German. The requirement is to be fulfilled by two semesters in the same language.

Natural Science: three credit hours
Physics of Music is recommended. Courses may be taken in the Biology, Chemistry, and Physics Departments or other departments with approval by the Music Department Chairperson.

Social Science: three credit hours
Courses may be taken in economics, political science, psychology, sociology, or education.

Humanities: nine credit hours
Three credits in history or art history (ARH 102) and six additional credits in those fields or literature (either English or a foreign language) or philosophy, mathematics, and computer science.

Minimum Acceptable Course Grades/ Progress Requirements

The Music Department requires a minimum acceptable grade of C (2.0) in each music course that will be included in fulfillment of music major and minor requirements.

Students in the Applied Music track will have their progress monitored by the music department faculty in semester-end juries. For promotion, students must meet minimum criteria for each level (information on these criteria and other departmental regulations is available from the department office).

Once a music major is accepted into an applied-studies track, the student is assured of continuation if a minimum of 2.0 is obtained each semester in the applied lesson and the student is otherwise in good standing. Receiving less than a C grade but still passing will result in the student being placed on probationary status for one semester, at the end of which time the student's progress will be reviewed by departmental jury and the applied instructor. Should the student's progress be less than expected for his or her length of study, applied lessons will be terminated. It will be incumbent on the student either to make up the work, find another applied track, petition successfully for entry to the theory/composition track, or find another major program at UMass Dartmouth. A student who gets a failing grade may re-audition for applied lessons on a space-available basis.

Applied students must perform in a student recital during the sophomore year, give a joint recital during the junior year, and perform a full recital during the senior year. All students performing junior and senior recitals will be required to play a preliminary recital-permission audition before they may schedule their recitals. The audition will be played for the applied faculty and must be scheduled between October 1 and April 15. All recitals must be scheduled to occur while classes are in session (before the final exam period).

Music Educator Certification

The university also offers courses toward music educator certification, available to UMass Dartmouth music majors within the BMus degree. For more information, please inquire at the office of the Chairperson, Department of Music, or of the Dean of the College.

Music Major

Core Curriculum Semester Credits

		First	Second
First Year			
MUS 101	Introduction to Music	3	
MUS 171, 172	Theory I, II	3	3
MUS 109, 110	Music Skills I, II	2	2
MUS 165, 166	Class Piano I, II	2	2
	Applied Studies	3	3
	Ensemble	1	1
MUS 191, 192	Performance Workshop	1/4	1/4
ENL 101, 102	Critical Writing and Reading I, II	3	3
	Distribution requirement*		3
		17 1/4	**17 1/4**

*History or Art History (ARH 102) is recommended as preparation for Survey of Western Music (MUS 203, 204).

Second Year			
MUS 271, 272	Theory III, IV	3	3
MUS 209, 210	Music Skills III, IV	2	2
MUS 203, 204	Survey of Western Music	3	3
MUS 265, 266	Class Piano III, IV	2	2
	Applied Studies	3	3
	Ensemble	1	1
MUS 291, 292	Performance Workshop	1/4	1/4
	Distribution requirements**	3	3
		17 1/4	**17 1/4**

**Students desiring music education certification should include EDU 205 Human Development and Learning.

Third and Fourth Years
Applied Track

	Credits
Applied Studies	12
Music Electives*	12
Distribution	12
Free Electives (non-music)	6
Music History (period courses)	6
Performance Workshop (one each semester)	1
Ensemble (one each semester)	4
Senior Recital	2
Conducting	2
Form and Analysis	3
Total credits:	**129**
	****131**

*
Music Electives must be chosen from non-applied 300- and 400- level courses.

**Voice majors must take an additional 2 credits in Foreign Language Diction (MUS 219, 220)

Third and Fourth Years
Theory Track

Theory students must pass a Sophomore Exam for promotion to upper division standing. The exam will consist of a review of class work submitted by the student and the creation of a musical composition on a given set of criteria. A minimum of 2.0 grade average in music major courses will also be expected for promotion. Successful candidates will be able to complete the applied studies requirement if it has been deferred during the first two years of study.

		Credits
MUS 333,334	Theory/Composition	6
MUS 313	Orchestration	3
	Ensemble (one each semester)	4
MUS 223	Electronic Music Studio Techniques	3
MUS 300 level	Electronic Studio	3
MUS 411	Introduction to Analysis **OR**	3
MUS 412	Form and Analysis Seminar	
	Music Electives*	12
	Performance Workshop (one each semester)	1
	Distribution requirements	12
	Free Electives (non-music)	6
	Music History Period Courses	6
	Conducting	2
	Total credits:	**131**

*Music Electives must be chosen from non-applied 300- and 400- level courses.

Requirements

Music Minor

A Minor in Music is open to all UMass Dartmouth students who meet the Music Department entrance requirements. The program is designed for talented students who desire an opportunity to develop their musical abilities. It will also allow students who are seeking an eventual major in music to begin serious study in a challenging atmosphere.

Students may choose an area of concentration such as applied studies (piano, voice, flute, etc.), theory, or jazz studies. Each student's program is then built around this area of concentration in consultation with a departmental advisor. In addition, certain basic courses are required of all students. Students demonstrating a special ability or interest may, with approval of the full music faculty, develop individualized programs through independent study. Graduating seniors who have successfully completed the special music minor program will have this fact stated on their diplomas and official transcripts.

Applied Emphasis

For students whose area of concentration is piano, voice, or orchestral instruments.

	Credits
MUS 171, 172 Theory I, II	6
MUS 203, 204 Survey of Western Music I, II	6
MUS 165-166; 265-266 Class Piano*	4
Applied Voice/Instrument	12
Total	**28**

Students with an applied-emphasis minor are required to participate in at least one student recital in order to satisfy the music minor. This recital must be scheduled with the approval of the applied instructor.

In order to receive the music minor, students with applied emphasis are also required to participate in a major ensemble during at least one semester. Major ensembles include chorus, orchestra, and concert band.

*

Class piano is not required of students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.

Non-applied Emphasis

For students whose area of concentration is jazz studies or theory.

	Credits
MUS 171, 172 Theory I, II	6
MUS 203, 204 Survey of Western Music I, II	6
MUS 165, 166; 265, 266 Class Piano*	4
Applied Voice/Instrument	6
Music Concentration**	6
Total	**28**

*

Not required of piano students or other students able to pass the piano proficiency exam. A piano proficiency exam must be passed to receive the music minor certificate. Additional levels of class piano may be taken for academic credit, but only two may be applied to the music minor requirement.

**

Jazz concentration minors must include Jazz Theory and Improvisation for three credits and African-American Music for three credits. Theory concentration minors must include MUS 271 and MUS 272 for six credits.

Regulations Governing
Applied Music — For Music Majors and all UMass Dartmouth Students

Applied lessons are open to all qualified UMass Dartmouth students subject to the following order:
1.
Continuing Music majors and minors in good standing or on probation and new Music majors and minors (matriculating students).
2.
Continuing non-majors and non-minors in good standing and Music majors and minors on a second instrument.
3.
Non-majors and non-minors who wish to begin studies (subject to a qualifying audition) in certain applied fields, and where a financial burden upon the Music Department is not created.

All music majors and minors and other UMass Dartmouth students under priority three above must pay an applied music fee each semester for private instruction in voice or an instrument, and for each instrument studied, in addition to tuition and other charges.

Non-majors should be aware that continuation is on a space-available basis, although, where possible, the department will allow non-majors to continue their studies without interruption.

Good standing is defined in the following manner:
1.
Majors: Lower division student must be making steady progress in the theory sequence, music skills, and class piano, subject to advanced placement; upper division students should be completing two academic music courses per semester or finishing the core curriculum in a timely manner. The student may petition the department for waiver of these minimum standards.
2.
Minors: Declaration as a music minor must be filed through the registrar; in addition, steady progress must be made to complete the minor (at least three credits of non-performing coursework per semester in addition to applied-studies credit). The student may petition the department for waiver of these minimum standards.

Courses Primarily for Non-Majors

MUS 101, 102 three credits each
Introduction to Music

Presents a basic music vocabulary and develops intelligent discrimination in the listener through study and analysis of outstanding works from Gregorian Chant to the present, including music of diverse cultures. Emphasis is also placed on the relationship of the historical development of music to parallel movements in art, drama, philosophical thought, etc.

MUS 106 three credits
History of Rock Music

A music course for students with little or no background in music. The subject is approached as an historical examination of the development of American Rock and Roll music. Its social and intellectual roots, its relationship to domestic and foreign issues, and its role as a social institution in defining and perpetuating American values. Lectures, aural training and class discussions.

MUS 107 three credits
Fundamentals of Theory

A music course for beginners with no theory background. The study of the elements of music, systems of sounds, pitch, meter, rhythm, note values, dynamics, manuscript, etc. Identification, nomenclature, and performance will be carried out through a programmed text, lecture and practical application through singing and playing. This is a foundation course in theory and composition.

MUS 108 three credits
Materials of Music
Prerequisite: Ability to play an instrument and read music

A comprehensive view of music that explores concepts of style and structure, and develops aural perception as well as the ability to write music. It is intended for those who already have some performance ability in music and are able to read music.

MUS 125 three credits
Jazz: The Listener's Guide

Listening techniques designed to broaden the student in basic elements and structural features of Jazz music; listening exercises and development of aural skills through the study of appropriate Jazz recordings.

MUS 229 three credits
Survey of the Symphony

The development of the symphony as traced from the eighteenth century to the present day.

MUS 231 three credits
Beethoven

Knowledge of the genius through his composition.

MUS 232 three credits
Johann Sebastian Bach

A study of the great Baroque master through historical and musical examination.

MUS 235 three credits
Survey of American Music

American music from the Pilgrims to the present, including Folk Music, Jazz, and show tunes.

MUS 236 three credits
Masterpieces of Music

A more detailed listening to some of the great musical ideas of Western culture will be achieved through recorded and live performances. The examples will attempt to include one type of each major form, such as: opera, symphony, film music, overture, piano sonata, concerto and other.

MUS 238 three credits
Music and the Related Arts: Paris (1890-1930)

The music of the period investigated in relationship to the other arts. Debussy, for example, was labeled an impressionist because of the circumstances linking him to the impressionist painters. Debussy, however, was also influenced by *art nouveau* and by the symbolist poets. Other styles to be explored will include Satie's connections with dadaism and surrealism and Stravinsky's close alliance with ballet. Although listening to music will be of primary importance, art slides, poetry readings, and films of ballets will be used as much as possible. Guest lecturers will also be called upon as the occasion arises.

Applied Music courses are also available for non-majors, as listed later in this section.

Courses are available in piano, guitar, voice, and an orchestra instrument, and, for those who have met the prerequisites, electronic music.

MUS 121, 122 three credits each
Music and the Theater I, II

To open the world of music-drama, its social history, theatrical, musical traditions and various conventions of performance. The interrelation of music and drama; its physical makeup (stage mechanics, set design, lighting design, costume design) and its development into a highly complex art form. Becoming aware of the important and special powers of music and the way it can lend a greater force to drama. Guest lecturers on costume, scenic-lighting design and orchestral problems in music-theater.

MUS 127 three credits
Survey of Choral Literature

A specialized appreciation course that examines music for group singing-Gregorian chant, medieval mass and motet, Renaissance madrigals, motets, Baroque oratorio, Bach cantatas, opera choruses of Monteverdi, Purcell, Gluck, Mozart, Verdi and twentieth century works with unusual harmonic effects. Lectures, listening, study and, where possible, live demonstrations will constitute the work.

MUS 203, 204 three credits each
Survey of Western Music I, II
Prerequisites: MUS 171, 172

A course designed to give a broad view of music from the middle ages to the present. Listening and analysis will be stressed, but historical background will also be discussed. The course will include exposure to music of diverse cultures.

MUS 241 three credits
Music of the Classical Period
Prerequisites: MUS 203, 204

A study of the major works of Haydn, Mozart and Beethoven.

MUS 242 three credits
African-American Music
Prerequisite: MUS 107 or equivalent

A general survey of African-American music in the U.S. traced from its origins to the present. The course is intended to introduce the student to the vast and rich expanses of black musical culture, both from a musical and socio-historical standpoint. The emphasis of the course will be on jazz, its history, and an analysis of the contributions of its major innovative figures.

MUS 243 three credits
Music of the Baroque Period
Prerequisites: MUS 203, 204

A study of the major stylistic developments in the music from 1600 to 1750. Monteverdi to Bach and Handel.

MUS 337 three credits
Music of the Twentieth Century
Prerequisites: MUS 203, 204; or permission of instructor

A study is made in the trends in twentieth century music, embracing analysis of representative works from the period and their relationships to the existing culture.

MUS 339 three credits
Music of the Romantic Period
Prerequisites: MUS 203, 204

A survey of the masterpieces of Chopin, Tchaikovsky and other nineteenth century composers.

MUS 395 three credits
Seminar in Music History
Prerequisites: MUS 203, 204

A seminar on selected topics in Music History.

MUS 491 two to six credits
Advanced Study in Music History
Prerequisites: MUS 203, 204 and two of MUS 337, 339, 341, 343

Intensive study of research on a special topic in Music History under the direction of a faculty member.

MUS 495 three credits
Independent Study in Music

Chairperson will confer with a candidate who wishes to pursue a special project not covered by other seminars or directed study options.

MUS 496 three credits
Directed Study in Music

Student must confer with chairperson upon recommendation of faculty member.

MUS 109, 110 two credits each
Music Skills I, II
Prerequisite: MUS 107 or equivalent

An intensive study and practice of the reading, performance, notation and dictation of rhythm, meter, intervals, melody, and chords. Useful for all singers and instrumentalists.

MUS 111 three credits
Theory 2: Harmony I
Prerequisite: MUS 107 or equivalent

A study of tonal harmony, triads, seventh chords, chord grouping and voice leading. A course in tonal music theory. Counterpoint may be prerequisite for Harmony I.

MUS 113 three credits
Theory 1: Counterpoint
Prerequisites: MUS 107 or MUS 108 and permission of instructor

A study of the techniques of combining two or more musical lines into a polyphonic texture in selected historical periods. Analyses of selected models and study of the theory will become the basis for creating original pieces that imitate chosen models.

MUS 115 three credits
Jazz Theory and Improvisation
Prerequisites: MUS 111, 113, and instrumental proficiency

Two hours of class theory and a one to two hour practicum in jazz improvisation techniques. A course covering the study of jazz scales, chord structures, nomenclature and progression patterns. There will also be some elementary arranging. The theoretical studies will be put into practice in weekly performance session.

MUS 171 three credits
Music Theory I
Prerequisite: MUS 107 or equivalent

An introduction to tonal harmony, including elements of pitch and rhythm, triads, voice leading and harmonic progression. This is the first of four courses in music theory required of all music majors.

MUS 172 three credits
Music Theory II
Prerequisite: MUS 171

Continuation of MUS 171, exploring functional harmonic practices. The uses of non-chord tones, triadic inversions, seventh chords and simple chromaticism will be studied.

MUS 209, 210 two credits each
Music Skills III, IV
Prerequisites: MUS 109, 110

Continuation of MUS 109 and 110.

MUS 211 three credits
Theory 3: Harmony II
Prerequisites: MUS 111, 113

Continuation of MUS 111 and 113. Work will be done in such areas as modulation, altered chords, harmonic structure. Compositional exercises will be required.

MUS 212 three credits
Theory 4: Twentieth Century Theory
Prerequisite: MUS 211

The fourth semester of the theory sequence for music majors. An examination of techniques such as those leading to free atonal style, non-tertiary harmony, pandiatonicism, and twelve-tone serialism. Compositional exercises will be required.

MUS 223, 224 three credits each
Electronic Music Studio Techniques I, II
Prerequisite: MUS 107 or equivalent

The study and manipulation of available electronic music equipment to get acquainted with its operation, care and possibilities. Tape techniques and repertoire will also be studied. Lectures, readings, and studio projects are included. Rudimentary music theory knowledge is necessary, though keyboard knowledge is not required.

MUS 271 three credits
Music Theory III
Prerequisite: MUS 172

An exploration of the chromatic aspects of tonal harmony, including secondary functions, modulation, and mode mixture. Formal structures such as binary and ternary form will also be studied. Compositional exercises will be required.

MUS 272 three credits
Music Theory IV
Prerequisite: MUS 271

An expansion of harmonic vocabulary, including ninths, elevenths, and other higher-order chords, chromatic procedures of the nineteenth century and extensions of harmonic principles into the twentieth century. Compositional exercises will be required.

MUS 313 three credits
Orchestration
Prerequisite: MUS 212

An introduction to range, function and transposition of instruments.
Scoring projects will be assigned and selected scores will be analyzed.

MUS 315 three credits
Jazz Arranging
Prerequisite: MUS 212

A course covering various aspects of arranging charts for swing, jazz, rock, marching, or other pop style bands.

MUS 321 three credits
Microcomputers in Music
Prerequisite: MUS 223 or permission of instructor

Developing facility in using a variety of music-oriented microcomputer software and hardware in a creative, compositionally-oriented framework. Digital sampling techniques, wavetable synthesis and aspects of microcomputer architecture will be explored. In addition to readings, quizzes and lectures, there will be a minimum of three hours studio work per week.

MUS 322 three credits
MIDI Composition Techniques
Prerequisite: MUS 223 or permission of instructor

Developing facility in using MIDI (Musical Instrument Digital Interface) hardware and related software in a compositional framework. In addition to readings, quizzes and lectures, there will be a minimum of three hours studio work per week.

MUS 324 three credits
Synthesizer Programming Techniques
Prerequisite: MUS 223 or permission of instructor

Advanced programming options on analog and digital synthesizers will be explored in a creative, compositionally-oriented framework. In addition to readings, quizzes and lectures, there will be a minimum of three hours studio work per week.

MUS 325 three credits
Recording Techniques
Prerequisite: MUS 223 or permission of instructor

Developing facility in using tape recorders in both live and studio settings. Original compositions as well as work by members of the class will be realized and recorded. The student will have the opportunity to function in the various roles of the recording team. In addition to readings, quizzes and lectures, there will be a minimum of three hours group recording or individual studio time per week.

MUS 333, 334 three credits each
Theory Composition
Prerequisite: MUS 212

A working survey of the theory and analysis of a free and dodecaphonic atonality, neo-modality, quartral harmony and extended tonality in the works of major composers such as Schoenberg, Webern, Ives, Bartok and Hindemith. Students will produce exercises in these techniques and forms. During the second semester, serial, aleatory, textural, cluster, graphic, and other recent procedures in composition will be examined.

MUS 340 two credits
Principles of Conducting
Prerequisite: Equivalent of Junior standing in Music, or permission of instructor

An in-depth study of conducting techniques appropriate for choral and instrumental ensembles is combined with the study and development of score reading skills, analytical techniques needed by the serious interpreter of music.

MUS 397 three credits
Seminar in Music Theory
Prerequisite: MUS 212 or MUS 272

A seminar on selected topics in Music Theory.

MUS 411 three credits
Introduction to Analysis
Prerequisite: MUS 212 or MUS 272

A study of the techniques derived from the analytic systems of Heinrich Schenker and other 20th-century theories for the analysis of tonal music.

MUS 412 three credits
Form and Analysis Seminar
Prerequisite: MUS 212 or MUS 272

Selected, exemplary works from the pre-tonal, tonal and post-tonal periods will be examined in detail. Advanced techniques in analysis will be explored. Much of the emphasis will be on deducing internal theoretical structures from the works and comparing and relating these to traditional theoretical systems.

MUS 493 two to six credits
Advanced Study in Composition
Prerequisites: MUS 333, 334

Intensive composition studies on an individual basis under the direction of a member of the Music faculty.

MUS 497 two to six credits
Advanced Study in Music Theory
Prerequisites: MUS 411, 412

Intensive study or research on a special topic in music theory under the direction of a member of the music faculty.

Music Methods for Teaching

MUS 215 one credit
String Methods
Prerequisite: Music major, sophomore standing

Designed for those interested in teaching in the secondary school system. It will give a basic understanding of all string instruments and the techniques involved in playing them.

MUS 216 one credit
Percussion Methods
Prerequisite: Music major, sophomore standing

Designed for those interested in teaching in the secondary school system. It will give a basic understanding of all percussion instruments and the techniques involved in playing them.

MUS 217 one credit
Woodwind Methods
Prerequisite: Music major, sophomore standing

Designed for those interested in teaching in the secondary school system. It will give a basic understanding of all percussion instruments and the techniques involved in playing them.

MUS 218 one credit
Brass Methods
Prerequisite: Music major, sophomore standing

Designed for those interested in teaching in the secondary school system. It will give a basic understanding of all percussion instruments and the techniques involved in playing them.

MUS 316 three credits
Teaching Children Music, Grades N-9
Prerequisites: MUS 107 or equivalent and PSY 201, or EDU 310, or EDU 205

A study of children's musical experiences in learning rhythm, in singing, in reading music, in developing listening skills, and in classroom instrumental activities coupled with pre-practicum observation in local schools. For UMass Dartmouth students concentrating in Education.

MUS 317 three credits
Teaching Music in Secondary Schools
Prerequisite: PSY 215, and permission of music instructor

The methods and materials of the complete music programs in Middle and High schools with required observation for pre-practicum.

MUS 320 three credits
Keyboard Experiences for Teachers

The piano and electronic keyboards used in teaching, including: music theory adapted to keyboard harmonizations of basal series and curriculum materials, stylistic figurations, musicianship and creativity. On hand activity to develop skills and confidence is of prime importance.

Applied Music

MUS 117 one credit
Class Guitar I

Class guitar for beginners or those with slight experience. Emphasis is on learning to play simple, notated melodies and to learn chord fingerings for accompanying. Workshops on writing melodies will be included.

MUS 118 one credit
Class Guitar II

Continuation of MUS 117.

MUS 119 three credits
Introduction to Vocal Pedagogy
Prerequisite: Permission of instructor

A preparatory course in techniques of voice production through demonstration, observation, and active participation.

MUS 219, 220 one credit each
Foreign Language Diction

A course for voice majors in the pronunciation of languages used in vocal music.

MUS 149, 150, 249, 250 three credits each
Applied Voice I-IV
Prerequisite: Permission of instructor

Weekly private lessons.

MUS 349, 350, 449, 450 three credits each
Applied Voice V-VIII
Prerequisite: Permission of instructor

Weekly private lessons. Vocal pedagogy will be included at each level.

MUS 355, 356 two credits each
Applied Voice
Prerequisites: Completion of Levels I-IV

Weekly private half-hour lessons for theory track music majors working toward provisional music education certification.

MUS 151, 152, 251, 252 three credits each
Applied Piano I-IV
Prerequisite: Permission of instructor

Weekly private lessons.

MUS 351, 352, 451, 452 three credits each
Applied Piano V-VIII
Prerequisite: Permission of instructor

Weekly private lessons. Piano pedagogy will be included at each level.

MUS 357, 358 two credits each
Applied Piano
Prerequisites: Completion of Levels I-IV

Weekly private half-hour lessons for theory track music majors working toward provisional music education certification.

MUS 153, 154, 253, 254 three credits each
Applied Orchestral Instruments
Prerequisite: Permission of instructor

Weekly private lessons.

MUS 353, 354, 453, 545 three credits each
Applied Orchestral Instruments
Prerequisite: Permission of instructor

Weekly private lessons. Instrumental pedagogy will be included at each level.

MUS 359, 360 two credits each
Applied Instruments
Prerequisites: Completion of Levels I-IV

Weekly private half-hour lessons for theory track music majors working toward provisional music education certification.

MUS 165, 166, 265, 266 two credits each
Class Piano I, II, III, IV
Upper levels are continuation courses requiring permission of the instructor

Instruction in piano for the beginning student. No prior musical knowledge is necessary. An electronic piano laboratory will provide the setting for class instruction. Harmonic and melodic improvisation will be pursued as well as the study of keyboard skills and appropriate performance literature

MUS 169, 170, 269, 270 one credit each
Class Voice I, II, III, IV
Prerequisite: Permission of instructor

To bring to the student by observation, demonstration, participation and listening, a comprehension of the basic principles of vocal production and exposure to the vocal repertoire. Included will be vocalization, breathing language with application to literature. Besides class attendance, students participate in performances.

MUS 180, 181, 280, 281, 380, 381, 480, 481 three credits each
Directed Instrumental Studies
Prerequisite: Audition and permission of departmental chairperson/committee

Under the supervision of a faculty member, a student may receive credit for a planned program of instrumental study. The student must submit a proposal for the study to the faculty member. His or her progress will be monitored and a semester-end departmental jury must be passed for successful completion of the course.

MUS 191, 192, 291, 292, 391, 392, 491, 492 one quarter credit each
Performance Workshop

Increases the performance abilities and awareness of all music majors. It will include attendance at recitals, performance classes and workshops and will deal with traditional music as well as music from diverse cultures. It will give students the opportunity to perform or have their own compositions performed, including vocal, instrumental and electronic media. It will also deal with stage deportment, structuring of recital programs, and other matters relating to musical performance.

MUS 245, 246 three credits each
Applied Vocal Repertoire and Ensemble Class

Various interpretive styles of composers in song and music-drama-literature: diction, tempo, phrasing, dynamics, aesthetics, audience rapport. Along with solo repertoire, the vocal small ensemble repertoire, and chamber literature with instrument and voice.

MUS 341, 342 three credits each
Synthesizer Performance I, II
Prerequisites: MUS 223, two semesters of 300-level electronic studio courses and permission of instructor

Advanced individual studies in Music Technology specializing in Synthesizer Performance.

MUS 343, 344 three credits each
Electronic Composition I, II
Prerequisites: MUS 223, two semesters of 300-level electronic studio courses and permission of instructor

Advanced individual studies in Music Technology specializing in Electronic Composition.

MUS 345, 346 three credits each
Sound Production I, II
Prerequisites: MUS 223, two semester of 300-level electronic studio courses and permission of instructor

Advanced individual studies in Music Technology specializing in Sound Production.

MUS 441, 442 three credits each
Synthesizer Performance III, IV
Prerequisite: MUS 342 or permission of instructor

Continuation of MUS 341, 342

MUS 443, 444 three credits each
Electronic Composition III, IV
Prerequisite: MUS 344 or permission of instructor

Continuation of MUS 343, 344

MUS 445, 446 three credits each
Sound Production III, IV
Prerequisites: MUS 346 or permission of instructor

Continuation of MUS 345, 346

MUS 485, 486 one credit each
Senior Recital
Prerequisite: Senior standing in applied studies

This course, under supervision of the appropriate applied faculty member, is required of Music Major students in applied studies. The first semester and part of the second is to be spent in preparation for the recital. Consult with the department for recital guideline.

MUS 495
Independent Study

The performance ensembles are open to all university students subject to the approval of the director. They may be utilized as free electives and repeated for credit.

MUS 155 one credit
UMass Dartmouth Chorus

Open to students, staff, and faculty. Sight-reading not required but minimal experience in group singing desirable.

MUS 157 one credit
Orchestra

This course provides opportunity for qualified students to perform major standard and contemporary orchestral literature. Instruments are available for qualified students. Note: Although anyone may participate in Orchestra Activities, credit is only obtainable if the student is enrolled full-time in a degree program at UMass Dartmouth.

MUS 159 one credit
Concert Band

This course provides an opportunity for qualified students to perform major standards and contemporary band literature.

MUS 161 one credit
Small Instrumental Ensembles

Small performing organizations devoted to the music repertoire of all stylistic periods.

MUS 163 one credit
Stage Band
Prerequisite: Permission of instructor

Performance of contemporary "Big Band" literature built on the elements of jazz.

MUS 167 one credit
Madrigal Singers
Prerequisite: Permission of instructor

Performance of madrigals and other works for small chorus from a variety of musical styles. Concurrent participation in MUS 155 is encouraged.

MUS 247, 248, 347, 348, 447, 448
three credits each
Music Theater Performance
Prerequisite: Permission of instructor

How a musical stage composition is developed and generated by a signal plan of composer, conductor, performer and stage director. Learning the language of the theater and the interrelation of drama, theater, opera, and music theater. An opportunity for vocal student and music-drama enthusiasts to participate in production at a high level of performance standards.

Courses in Theater Arts introduce students to the history, theory, and craft of the theater. In conjunction with them, theatrical productions offer laboratory experience. As electives they are open to all the students in the university.

TAR 100 three credits
Theater Workshop

An introduction to theater practice emphasizing acting and stagecraft. Productions for audiences and an introduction to theater management area also included in this course.

TAR 101 three credits
Theater Workshop
Prerequisite: TAR 100

Continuation of TAR 100.

TAR 200 three credits
Theater Workshop
Prerequisite: TAR 100

Advanced study and experience in theater and an introduction to directing. Students in this course and in TAR 201 participate in the full theatrical season at UMass Dartmouth as well as in student productions in the community.

TAR 201 three credits
Theater Workshop
Prerequisite: TAR 200

Continuation of TAR 200.

TAR 495
Independent Study

TAR 496
Directed Study

TAR 900
Contract Learning

This chapter lists minors and other programs that are not contained in one specific college of the university

Interdisciplinary Programs

Interdisciplinary Minors

Interdisciplinary minors involve a number of academic fields and are offered by faculty from many academic departments. But these programs do more than just convey a subject matter that happens to intersect with more than one academic field. They are interdisciplinary by design and intention, concerned with the methodological issues of interdisciplinary study and valuing the interplay of forms of dialogue used in various fields of inquiry.

Students are encouraged to contact the advisors for these programs to learn more about their range of courses, their benefits, and their challenges.

Pre-Professional Programs

This chapter also describes two pre-professional programs that will be of special interest to our students, **pre-med** and **pre-law**.

All of the degree programs at the university are pre-professional in that they prepare students to enter their chosen career fields. They allow students to enter the job market, pursue studies toward an advanced degree, or seek professional credentialing, and they are designed to meet professional standards for their fields. In addition, a number of degree programs are aimed specifically at preparing students for entrance into a profession that requires candidates to obtain a license or certificate after completing their required university studies. Examples include Medical Laboratory Science, Nursing, Engineering, and the program for Teacher Preparation. The descriptions of these and other programs are found in the departmental sections of this *Catalogue*.

African and African-American Studies Minor

African and African-American Studies is a multidisciplinary approach to the understanding of the society, culture, and history of Africans and people of African descent. Drawing on the expertise of scholars of the African and African-American experience in the fields of sociology, literature, the visual and performing arts, history, political science, education, economics, and anthropology, the minor has the following goals:

- To emphasize the African and African-American contribution to world development.
- To broaden and deepen students' understanding of Africa, the African diaspora, and the American identity.
- To provide students of African descent with an opportunity to pursue a program of study directly relevant to their own lives and expose as many students as possible to African and African-American studies.

African and African-American Studies Committee

John E. Bush Sociology

Thomas K. Ranuga Sociology

Gloria Waite History

Everett Hoagland English

Susan E. Houchins English

Selected Faculty College of Arts and Sciences and College of Visual and Performing Arts

Requirements

Each student who minors in African and African-American Studies is required to complete AAS 101 Introduction to African and African-American Studies. In addition, five elective courses must be selected, two from Group A and three from Group B. No more than two of the elective courses may be in one department. Program total: 18 credits.

Group A:
Choose two courses

AAS/ENL 214 African-American Literature

AAS/ENL 215 West Indian and African Literature

AAS/ENL 246 Women Writers

AAS/HST 190 African Civilization

AAS/HST 205 African-American History I

AAS/HST 206 African-American History II

AAS/HST 290 Modern Africa

AAS/MUS 125 Jazz: The Listener's Guide

AAS/MUS 242 African-American Music

AAS/SOC 226 Sociology of Africa

AAS/SOC 230 Black Identify and the Social World

AAS/SOC 253 Urban Sociology

more on next page

Group B:
Choose three courses
AAS 495 Independent Study

AAS 496 Directed Study

AAS 900 Contract Learning

AAS/ARH 361 Art and Culture of Africa

AAS/HST 300 Topics in American History

AAS/HST 378 Slavery in the New World

AAS/PSC 313 Urban Politics

AAS/PSC 372 Revolutionary Change

AAS/SOC 353 Readings in Sociological Literature: The Black Family

AAS 101 three credits
Introduction to African and African-American Studies
3 hours lecture

Introduction to the principal topics in the study of Africans and African-Americans. This is the introductory course for the minor in African and African-American Studies, providing students with an encompassing framework for the African and African-American experience.

AAS 125 (MUS 125) three credits
Jazz: The Listener's Guide

Listening techniques designed to broaden the student in basic elements and structural features of jazz music; listening exercises and development of aural skills through the study of appropriate jazz recordings.

AAS 190 (HST 190) three credits
African Civilization

An introduction to the culture, history, and civilizations of the African continent, with special emphasis on sub-Saharan Africa. This one-semester survey is designed to acquaint the student with the principal themes of African history and development from pre-historic to modern times.

AAS 205 (HST 205) three credits
African-American History I

A survey of the role of African-Americans in American life and culture from the colonial period to the mid-19th century.

AAS 206 (HST 206) three credits
African-American History II

A continuation of the study of the role of African-Americans in American history, from about 1865 to the present.

AAS 214 (ENL 214) three credits
African-American Literature

Chronological survey beginning with Gustavus Vassa and Robert Hayden's "Middle Passage" and continuing through contemporary writers. Toward the end of the course there will be a focus on new women writers and major writers through the 1990s.

AAS 215 (ENL 215) three credits
West Indian and African Literature

A study of important and innovative West Indian and contemporary African writers.

AAS 226 (SOC 226 or ANT 226) three credits
Sociology of Africa
A survey of change and conflict in African society, historically and at present. Particular attention will be paid to the effects of colonialism and African resistance to it.

AAS 230 (SOC 230) three credits
Black Identity and the Social World

This course is especially designed for Black students and white students who are concerned with Black heritage. Considerable time will be spent in studying the heritage of black people. We will examine the African past through literature, etc., examine the survival techniques which Blacks developed in order to survive in an alien world, and analyze the collective identity of Black people at the present time.

AAS 242 (MUS 242) three credits
African-American Music
Prerequisite: MUS 107 or equivalent

A general survey of African-American music in the U.S. traced from its origins to the present. The course is intended to introduce the student to the vast and rich expanses of black musical culture, both

from a musical and socio-historical standpoint. The emphasis of the course will be on jazz, its history, and an analysis of the contributions of its major innovative figures.

AAS 246 (ENL 246)
Women Writers
Prerequisite: ENL 102

When the subject matter is related to the minor: an examination of the relationship between the woman writer and her work through a study of literature by and about women. Satisfies literature distribution requirement.

AAS 253 (SOC 253) three credits
Urban Sociology
Prerequisite: SOC 101

An ecological and social psychological analysis of urban life in the United States. Urban institutions and their social relations with the urban community are given special attention.

AAS 290 (HST 290) three credits
Modern Africa

Survey of Africa's modern history, beginning especially after 1800. It looks at the beginnings and expansions of European and African-American settlements there, the Zulu and Islamic Revolutions, the conquest and colonization of Africa, and post-colonial developments.

AAS 300 (HST 300) three credits
Topics in American History

When the subject matter is related to the minor: a critical analysis of selected to pics or issues in African-American history.

AAS 353 (SOC 353) three credits
Readings in Sociological Literature: The Black Family
Prerequisite: Permission of instructor

When the subject matter is related to the minor: directed readings and analysis in sociological topics related to the Black family.

AAS 361 (ARH 361) three credits
Art and Culture of Africa

A survey of the arts, crafts, and architecture of Africa. Historical developments, stylistics, and aesthetics will be investigated within a socio-cultural framework.

AAS 372 (PSC 372) three credits
Revolutionary Change
Prerequisite: Upper-division standing

Revolution is treated as a special category of social change. The course deals with a comparative analysis of the determinants of revolutionary change in selected areas in Latin America, Africa, the Middle East, and Southeast Asia.

AAS 378 (HST 378) three credits
Slavery in the New World

The trans-Atlantic slave trade and slavery in the Americas from the sixteenth to the nineteenth century. Emphasis on the beginning and development of the trans-Atlantic slave trade; moral issues, economics, and tactics of the trade; and comparisons of the slave societies of Brazil, the Caribbean, and the United States.

AAS 391 (HST 391, WMS 391, LST 391) three credits
Topics in African History
Prerequisites: HST 190 or HST 290 or written permission of the instructor

Advanced-level course for students with a background in African history. Topics will vary from year to year. Research papers will be required.

AAS 495
Independent Study

AAS 496
Directed Study

AAS 900
Contract Learning

Gerontology Certificate Program and Gerontology Minor

University Faculty Gerontology Committee

Shaleen Barnes Librarian

Julie Cleare Psychology

Phyllis Currier Institutional Nursing

Ora De Jesus Community Nursing

Donald J. Mulcare (program coordinator) Biology

Rita O'Neill Institutional Nursing

Dante Vena Art Education

Sonia M. Walgreen Economics

The University of Massachusetts Dartmouth offers a multidisciplinary gerontology certificate program and a minor. The minor is designed for degree candidates from any college in the university who wish to specialize in the gerontological aspects of their own or other disciplines.

The Certificate Program is a multidisciplinary program that is open to UMass Dartmouth students or members of the community, regardless of whether they are university degree candidates. The Certificate Program is administered by the College of Nursing.

Although there is no gerontology major, students may use a concentration in gerontology as a key element in a self-designed multidisciplinary studies major program. See the description of multidisciplinary studies elsewhere in the catalog.

Certificate Program in Gerontology

Advisors for Certificate Program in Gerontology

Julie Cleare Professor of Psychology, Ext 8383

Phyllis Currier Associate Professor of Institutional Nursing, Ext 8583

Donald J. Mulcare (program coordinator) Professor of Biology, Ext 8224

Sonia M. Walgreen Visiting Lecturer of Economics, Ext 8337

A certificate in gerontology is a credential awarded upon completion of an interdisciplinary program of study on aging in contemporary society. The credential requires twenty-four credits including a practicum. The program emphasizes the development of positive attitudes about aging and the aged, an analysis of the impact of society on aging, and the impact of the older population on society. Students will have direct contact with older adults through the practicum in order to reinforce positive attitudes toward the aging. The core knowledge of all persons receiving the credential requires study in the following areas: demography of aging with regard to present and future trends in the U.S. population, biology of aging, psychosocial issues affecting older adults and caregivers, public policy, ethics, financing of health care for older adults, and health promotion for older adults. The certificate program in gerontology reflects the needs of the older population in the community and the local service network for older adults.

The Certificate is designed for students enrolled at UMass Dartmouth and community members who are interested in completing the certificate requirements.

Admission
Any UMass Dartmouth student or community member wishing to pursue a Certificate in Gerontology should apply to one of the contact persons above.

Requirements

A Certificate in Gerontology will be awarded upon completion of twenty-four credits (8 courses). These include five required courses, a required practicum and two electives selected from the approved list. A student must achieve a minimum of a grade point average of 2.0 in these courses.

Required	**Credits**
GRT 201 Introduction to Gerontology	3
GRT/BIO 216 Biology of Aging **OR** GRT 301 Health Disorders of the Elderly **OR** GRT 312 Geronological Nutrition **OR** BIO 511 Seminar: Biological Aspects of Aging	3
GRT 300 Aging, Health and Community Support **OR** GRT 311 Topics in Gerontology: Ageism **OR** GRT /ENL 346 Portraits of Older Women	3
GRT 309 Mental Health and Aging **OR** PSY 490 Special Topics in Psychology: Psychology of Aging	3
GRT 430 Senior Seminar	3
GRT 421 Practicum	3
Electives (from approved list)	6
Program total:	**24**

Approved Electives

BIO 511 Seminar: Biological Aspects of Aging
GRT 300 Aging, Health, and Community Support
GRT 301 Health Disorders of the Elderly
GRT 302 Aging in Contemporary Society
GRT 309 Mental Health and Aging
GRT 310 Therapeutic Activites in Long-term Care
GRT 311 Topics in Gerontology
GRT 312 Gerontological Nutrition
GRT 435 Art, Artists, Aging and Enjoyment
GRT/ECO 366 Economics of Aging
GRT/EDU 380 Seminar in Lifelong Learning: The Elderly
GRT/ENL 346 Portraits of Older Women
GRT/NUR 440/441 Management in Long Term Care
GRT/PHL 317 Ethics and Health Care Professionals
GRT/PSC 334 Elder Affairs in American Politics
GRT PSY 490 Special Topics in Psychology: Psychology of Aging

Minor in Gerontology

Advisors for the Minor

Joan Felder Professor of Medical Laboratory Science, Ext 8330

Donald J. Mulcare (program coordinator) Professor of Biology, Ext 8224

Gerontology is the study of aging, a process that may be examined from the perspective of many academic disciplines — biology, psychology, sociology, political science, economics, and health sciences among them. The gerontology minor is a multidisciplinary program supervised by faculty from many disciplines and colleges within the university.

The gerontology minor is intended to open educational and career opportunities for students who have an interest in aging. Participants in the program will be degree candidates from any college in the university who wish to specialize in the gerontological aspects of their own and other disciplines. The minor is also appropriate for students who want to more fully understand the aging process as it relates to the individual and society. The program is structured for students without previous experience or training in gerontology.

Admission
Any undergraduate degree candidate at UMass Dartmouth who has completed 54 credits toward a baccalaureate degree and has at least a 2.5 GPA in the major and a 2.0 overall GPA may be admitted to the gerontology minor. Application for admission should be made to the program coordinator. Special students who are not UMass Dartmouth degree candidates may enroll in individual courses.

Requirements for the Minor

	Credits
GRT 201 Introduction to Gerontology	3
GRT 430 Senior Gerontology Seminar	3
Electives (from the courses listed below)	12
Program total:	**18**

At least 9 of the 18 credits must be at the upper-division level.

GRT 201 three credits
Introduction to Gerontology

An overview of gerontology is presented with emphasis on the integration of the physical, biological, psychological, social, economic and political aspects of aging. Field experience will include a series of interviews with an older person to develop an oral history.

GRT 216 (BIO 216) three credits
Biology of Aging
Prerequisite: BIO 101, an equivalent, or permission of instructor

The biological background to the aging process will be presented. This will include a description of the theories of aging and the developmental and physiological changes that occur throughout the aging process.

GRT 300 three credits
Aging, Health and Community Support
Prerequisite: GRT 201 or permission of instructor

The course focuses on the older adult who resides in the community. Aging is presented as a normal development stage in the life cycle. Factors that facilitate the achievement of old age as an enjoyable and satisfying time of life will be stressed. Forces that impact negatively on the quality of life of older adults will be analyzed. Relevant gerontological research will be highlighted. Support services and available resources for the older adult will be explored and provide an opportunity for student involvement with the elderly.

GRT 301 three credits
Health Disorders of the Elderly
Prerequisites: BIO 101, 102; or BIO 221, 222; or permission of instructor

The course focuses on an investigation of physiological and pathological changes which may accompany the aging process in some individuals.

GRT 302 three credits
Aging in Contemporary Society

This course introduces students to the study of aging through a focus on the social definitions, structures, relations, and problems. The differential role of gender, class, ethnicity, race and geography will be explored in relation to aging in society. Emphasis will be placed on the relationship between aging and key social institutions such as the family, community, education, religion, government, industry and health care. Students will have opportunities to explore topics through field work and/or written assignments.

GRT 309 three credits
Mental Health and Aging

This course will provide the student with an understanding of the issues in mental health and mental illness of the aged individual. The course presents an in depth discussion of the etiology, symptoms, and treatments of those mental disorders most frequently encountered in the elderly.

GRT 310 three credits
Therapeutic Activities in Long-term Care
Prerequisite: GRT 201 or permission of instructor

Therapeutic recreation for the aging. Topics include: Omnibus Budget Reconciliation Act and Massachusetts Department of Public Health regulations, calendar planning, program development, resources and activity sharing, management, volunteerism, professionalism, and many aspects of therapeutic recreation with the aging population. Course is applicable towards Massachusetts Certification in Activities for Health Care Professionals and Day Care Recreational Professionals.

GRT 311 three credits
Topics in Gerontology
Prerequisite: GRT 201

Topics in gerontology not usually included in the gerontology curriculum will be offered in this course. Content will vary with each offering. Material may be presented in a lecture or a seminar format.

GRT 312 three credits
Gerontological Nutrition
Prerequisite: NUR 105 or equivalent

Nutritional needs of the older adult. This course focuses on the physiological changes that occur with the aging process and their relationship to the nutritional requirements of the elderly. Assessment of the nutritional status of elders and nutritional services available to this group will also be discussed.

GRT 317 (PHL 317) three credits
Ethics and Health Care Professionals
Prerequisite: Junior standing in Medical Laboratory Science, Nursing, Psychology or Sociology

An examination of the ethical aspects of the health care professions and the impact of ethical issues on the professional's life. Topics include responsibility, conscience, professional codes of ethics, privacy, informed consent, access to health care, loss and death.

GRT 334 (PSC 334) three credits
Elder Affairs in American Politics
Prerequisites: PSC 101; GRT 201 (recommended)

The elderly are described and analyzed within the context of general political science concepts of participation and representation in the American political system; in particular, interest group theory is reviewed and critiqued as applied to elders and their organizational advocates.

GRT 346 (ENL346) three credits
Portraits of Older Women
Prerequisite: ENL 102

This team-taught course presents a multidisciplinary perspective of the phenomena of women and aging in American society. The experiences of older women are explored through literature, oral histories, and intergenerational class projects to determine the forces that affect quality of life and productivity in later life.

GRT 366 (ECO 366) three credits
Economics of Aging
Prerequisites: ECO 231, 232; or permission of instructor

Economic issues associated with "growing older" as well as issues and policies related to "being older"; including the economic status of the elderly, economic implications of paid work or retirement, the economics impact of social security, health care needs and costs.

GRT 380 (EDU 380) three credits
Seminar in Lifelong Learning: The Elderly
Prerequisite: GRT 201

This is an advanced course for professionals delivering services to the elderly. Students will be involved in discussions, readings and experiences intended to lead to deep insight and understanding of the elderly. Each student is expected to choose an elderly partner in the community and to spend at least two hours a week with that partner.

GRT 421 three credits
Practicum
Prerequisites: GRT 201 and minimum of one other gerontology core course completed.

The practicum, a required course for the certificate, provides the student an opportunity to synthesize and apply knowledge about older adults either through supervised field experience or a project in gerontology. The practicum is planned to meet the individual needs of the student relative to professional background, personal interests, and career goals.

GRT 430 three credits
Senior Seminar
Prerequisites: GRT 201 and the completion of at least six (6) other credits in the minor.

A culminating and integrating seminar with research components open to those accepted as candidates for the minor who have senior standing or to others with permission of the instructor.

GRT 435 (AED 435) three credits
Art, Artists, Aging, and Enjoyment

Art history as it relates to the careers of older artists; the representation of age in art; the design of art programs of use to elders and a review and practice of appropriate media will be presented in a combined lecture and studio format. May satisfy Humanities distribution requirement.

GRT 440-441 (NUR 440-441) three credits
Management in Long Term Care
Prerequisite: Open only to nursing majors

In this theory/clinical lab course the management role of the professional nurse in the nursing care of the older person will be examined. Clinical practice occurs in a skilled nursing home with opportunity for interaction and referral to, from and within the long term care system. Analysis of the long term care system regulatory processes as they affect client outcomes will also provide a basis for evaluation and for the development of creative nursing strategies. Emphasis will be placed on the application of current nursing knowledge and research in the practice setting.

Honors Program

University-wide honors activities are available to students who demonstrate high academic achievement. Students with an excellent academic record receive an in-vitation to participate in the Honors Colloquium, the Series, Honors Essay Contest, the Annual Honors Convocation and other events that recognize and encourage the achievement of honors students. Participants may engage in as few or as many activities as they desire.

Students with a cumulative grade point average at or above 3.2 may enroll in available introductory level honors sections of courses such as history, economics, political science, sociology, psychology, English, chemistry, philosophy, biology, engineering, mathematics, gerontology, art history, philosophy, and physics. Students admitted to the university with test scores and/or high school records which predict university performance at honors levels will be invited to enroll in honors sections. Nominations from secondary school teachers or counselor, and from faculty of the university are also considered.

Students who complete the 30-credit honors program are designated **Commonwealth Scholars**.
These students must

- complete at least 15 credits of honors courses outside the field of their major;
- complete HON 201 Multidisciplinary Approaches to Research and Writing;
- complete 6 credits of junior-level honors coursework in the major; and
- complete 6 credits of a senior honors project, independent study, or thesis in the major field during the senior year.

Director of Program

Louise Habicht English

By agreement with the director and the major department chairperson, a student may fulfill all or part of the advanced honors requirement in the major field through study abroad, special summer projects or research, or participation in honors semesters at other schools in the United States or abroad.

For further information about the University Honors or departmental honors programs, consult the Academic Regulations and Procedures chapter of this *Catalogue* and the various departmental sections.

Honors Courses

HON 201 three credits
Multidisciplinary Approaches to Research and Writing
Prerequisites: Successful completion of three honors courses; sophomore or junior standing; 3.2 or higher cumulative GPA

Introduction to the models of scholarly reasoning and problem-solving used in various academic disciplines. This course enables honors students to develop their critical thinking abilities across several fields of inquiry, including the sciences.

Honors Residence Area
Starting in fall 1995, an area in the residence halls has been set aside for honors students.

Please note:
Honors courses are scheduled each semester with special criteria for size and use of a seminar format. Consult the *Course Listings* publication each semester.

International Marketing/ French Certificate Program

Program Director

Deborah Lee Foreign Languages

The Omer E. and Laurette M. Boivin Center for French Language and Culture offers a Certificate Program in International Marketing/French. Any UMass Dartmouth student wishing to pursue the Certificate may apply to The Boivin Center through its Director for entrance into the program.

Certificate Requirements

Students must have completed French courses through French 202, or have the equivalent knowledge of French. The Certificate of Studies in International Marketing/French will be awarded with the diploma at graduation, providing that the student has at least a 2.5 grade point average in Certificate courses.

		Credits
Courses in French		
FRN 301	French Composition and Conversation I	9
FRN 302	French Composition and Conversation II	
FRN 337	Commercial French	
Courses in Economics and Business and Industry:		
ECO 231	Economics	12
ECO 232	Economics II	
MKT 311	Principles of Marketing	
ECO 433	International Finance **or**	
ECO 431	International Trade	
One of the following courses: Course substitutions may be made with permission of the director.		
FIN 312	Business Finance	3
HST 329	European Economic History	
FIN 381	Money, Banking, and Economic Activity	
PSC 383	The Politics of International Economic Relations	
FIN 397	Financial Forecasting Methods	
FIN 398	Financial Institutions	
MKT 420	International Marketing	
ECO 431	International Trade	
FIN 494	International Financial Management	
	Total:	**24**

For full course descriptions please consult the appropriate department listings.

Judaic Studies Minor

The Judaic studies minor presents an interdisciplinary focus for studies of Jews and Judaism, including but not limited to historical, literary, linguistic, and philosophical perspectives and approaches.

The primary educational goal of this minor is to provide students with a clear idea of how different approaches to the framing and answering of questions of systematic learning deal with the same social entity over a long period of history. From this minor, the student should learn at least three things:

- some of the facts of the subject; that is, some knowledge of the history, philosophy, literature, and languages of the Jews;
- some clear knowledge of how a historian, philosopher, literary critic, or scholar of language frames humanistic questions and proceeds to answer them; and
- some ideas of what it means to look at the same subject from different perspectives.

Each student in the Judaic Studies minor is required to work closely with a faculty member in choosing courses offered through the minor. Although each student will have the flexibility to choose any course in the program, the advisers will guide the students so the program does not become a non-disciplinary exercise in Jewish studies, but a crafted effort to show how diverse disciplines within the academic community deal with a single subject. Those students completing the minor will receive recognition on their transcripts.

Judaic Studies Committee

Janet Freedman Library Services/ Education

Barbara Jacobskind English

Peter London Art Education

Robert Michael History

Robert P. Waxler (chairperson) English

Requirements

The Judaic Studies minor is open to any interested student with a cumulative GPA of at least 2.0 and with a 2.5 or higher GPA in the major.

Each student takes at least six courses within the minor, selected so that least one course is in the area of history, one in literature, and one in philosophy or language; and at least three are upper-division.

	Credits
JST 495 Independent Study: interdisciplinary seminar or other integrating topic	3
Five courses from the list of Judaic Studies courses	15
Total:	**18**

JST 213 (HST 213) three credits
World of the Old Testament

An historical, sociological, and philosophical study of the world of the Old Testament and its effect upon the development of both Christianity and Islam. Special emphasis is placed upon recent archaeological discoveries which shed light upon the interaction of ancient Israel with surrounding cultures and its place in the context of Middle Eastern civilization. Lecture and discussion are supplemented with slide presentations and the display of various artifacts that reflect the lifestyles of the Biblical period.

JST 214 (HST 214) three credits
The Post-Biblical World

An historical, sociological, and philosophical study of the post-Biblical world. Particular emphasis is placed upon both the origins of Christianity within the context of Jewish, Middle Eastern, and Roman history and the parallel development of Rabbinic Judaism. In addition to lecture and discussions, the class participates in a Seder Meal where the ritual practices of first-century Israel are recreated.

JST 218 (ENL 218) three credits
Modern Jewish Literature

Major written works reflecting Jewish themes. Particular emphasis is placed on changes in Jewish culture and Jewish consciousness suggested by these works and how these changes mirror universal changes in the modern West.

JST 260 (HST 260) three credits
The History of the Jewish People

A survey of the social, political, and economic history of the Jewish people from the first century through the modern era. Special emphasis is placed upon Jewish-Christian and Jewish-Islamic relations and their effect upon anti-semitism, the Holocaust, and the growth and development of Zionism. The student becomes acquainted with the place of the Jewish people in the mainstream of western culture and with the problem of maintaining ethnic and religious identify in a basically hostile environment.

JST 356 (HST 356) three credits
The Holocaust

An examination of the Holocaust, including the psychosocial aspects of prejudice; the history of anti-semitism from Biblical times; the historical, political, racist, economic, social, psychological, literary, legal, theological, and moral aspects of the Holocaust.

JST 400 (HST 400) three credits
Seminar in European History: A History of Christian-Jewish Relations

An examination of the fundamental structures of Judaism and Christianity and the historical origins of the myths created by the conflict between Judaism and Christianity. The course traces the various ways these myths have worked through European history and suggests some possible solutions to the conflicts.

JST 495 three credits
Independent Study

Interdisciplinary seminar or other integrating topic.

JST 496 three credits
Directed Study

Labor Studies Minor and Certificate Program

A labor studies background can help students prepare for future studies in labor law and labor relations, offer an opportunity to work for labor organizations and advocacy groups, and provide experience in public policy matters including employment issues such as health care, privatization, and new technology in the workplace.

The University of Massachusetts Dartmouth offers both a minor and a certificate program.

The labor studies minor offers university degree-seeking students an interdisciplinary approach to the analysis of work, workers, and the institutions they create to advance their interests as citizens of the workplace, the community, and the nation. Its primary goal is to focus the various humanistic perspectives derived from the liberal arts on the problems and conditions of labor in society. Consequently, it involves the study of labor history, political science, sociology, anthropology, economics, psychology, philosophy, and literature. It seeks to convey to students an understanding of labor as a broad social force with a constructive role to play in the solution of national and community problems.

The certificate in labor studies was created primarily to serve the needs of working adults, with a high school diploma or its equivalency, who are interested in learning more about labor issues. The aim is to help people prepare for a career in labor relations, advance in their unions, learn how to handle new issues in their workplace, or simply better understand the rich experience of workers and unions.

Labor Studies Committee

Roberta Hazen Aaronson Sociology/ Anthropology

Clyde Barrow Political Science

David Berger (chairperson) Economics

Daniel Georgianna Economics

Thomas Higginson Management/ Human Resources

Betty Mitchell History

James Nee English

José A. Soler Labor Education Center

Jack Stauder Sociology/Anthropology

Gloria Waite History

Robert Waxler English

Advisor for the Minor and Certificate Program

David Berger Professor of Economics

Minor Program in Labor Studies

Requirements

Students with a cumulative GPA of 2.0 or above and a 2.5 or higher GPA in their majors are invited to enter the labor studies minor. A course of study, should be constructed around an integrating theme such as labor and socio-economic theory; race, class, and gender; or labor and American thought.

The minor requires the completion of six courses (18 credits), of which three must be at the upper-division level. There are three required courses, and you may choose three electives from the list of designated Labor Studies courses:

		Credits
LST/HST 209	History of Labor in the United States	3
LST/PSC 326	Labor Relations: Law, Practice, and Policy	3
LST 450	Seminar in Labor Studies	3

Three electives from the following list. One of the elective courses must be at the upper-division level. There are three required courses, and you may choose three electives from the list of designated Labor Studies courses: 9

LST 101	Introduction to Labor Studies
LST/ECO 103	Cities, Minorities, and Poverty
LST/ECO 111	Jobs, Employment, and Income
LST/HST 205	African-American History I
LST 207/SOC 205	Industrial Society and Human Problems
LST/HST 206	African-American History II
LST/ENL 211	The American Dream
LST/ENL 218	Literature and Society
LST/PHL 226	Marx
LST/SOC 240	Dynamics of Community Organization
LST/ANT/SOC 249	The World of Work
LST/ENL 249	The World of Work
LST 250	Problems in Labor Studies
LST/SOC 301	Sociology of Work
LST 302/HRM 301	Human Resource Management
LST/SOC 305	Political Sociology
LST/HST 310	American's Working Women
LST/HRM 331	Industrial Relations and Labor Management
LST/ECO 342	Labor Economics
LST/ECO 343	Economics of Sex and Race Relations
LST 350	Issues in Labor Studies
LST/PSC 354	Contemporary Political Thought
LST/SOC 356	Wealth, Status, and Power in America
LST/HST 378	Slavery in the New World
LST/SOC 402	Sociological Theory
LST/HRM 435	Negotiations, Mediation, Arbitration
LST/HRM 436	History of the Labor Movement
LST 451/HRM 452	Legal Aspects of Human Resource Management
LST/ECO 452	Manpower and Regional Development
LST/ECO 453	Work, Jobs, and Income
LST 497	Internship in Labor Studies

Additional Political Science courses may be available for credit in the Labor Studies minor. Please check the Fall and Spring Course Listings published by the Office of University Records.

Total: 18

Certificate Program in Labor Studies

Requirements

The certificate program is open to any UMass Dartmouth student or community member. Applicants wishing to pursue a Certificate in Labor Studies should speak with David Berger, (508) 999-8256, or with the Labor Education Center staff, Group I Building, Room 106, (508) 999-8007. The certificate does not lead to a formal university degree, but students choosing to pursue a degree may apply credits earned in the certificate program.

The certificate program requires the completion of eight courses (24 credits). There are six required courses, and you may choose two electives from the list of designated Labor Studies courses:

		Credits
LST 101	Introduction to Labor Studies	3
LST/HST 209	History of Labor in the United States	3
LST 250	Problems in Labor Studies	3
LST 350	Issues in Labor Studies	3
LST/HRM 435	Negotiations, Mediation, Arbitration	3
LST 451/HRM 452	Legal Aspects of Human Resource Management	3

LST 101	Introduction to Labor Studies
LST/ECO 103	Cities, Minorities, and Poverty
LST/ECO 111	Jobs, Employment, and Income
LST/HST 205	African-American History I
LST 207/SOC 205	Industrial Society and Human Problems
LST/HST 206	African-American History II
LST/ENL 211	The American Dream
LST/ENL 218	Literature and Society
LST/PHL 226	Marx
LST/SOC 240	Dynamics of Community Organization
LST/ANT/SOC 249	The World of Work
LST/ENL 249	The World of Work
LST 250	Problems in Labor Studies
LST/SOC 301	Sociology of Work
LST 302/HRM 301	Human Resource Management
LST/SOC 305	Political Sociology
LST/HST 310	American's Working Women
LST/HRM 331	Industrial Relations and Labor Management
LST/ECO 342	Labor Economics
LST/ECO 343	Economics of Sex and Race Relations
LST 350	Issues in Labor Studies
LST/PSC 354	Contemporary Political Thought
LST/SOC 356	Wealth, Status, and Power in America
LST/HST 378	Slavery in the New World
LST/SOC 402	Sociological Theory
LST/HRM 435	Negotiations, Mediation, Arbitration
LST/HRM 436	History of the Labor Movement
LST 451/HRM 452	Legal Aspects of Human Resource Management
LST/ECO 452	Manpower and Regional Development
LST/ECO 453	Work, Jobs, and Income
LST 497	Internship in Labor Studies
	Total: 18

Labor Studies Courses

LST 101 three credits
Introduction to Labor Studies

An interdisciplinary introduction to the analysis of work and workers. The course surveys the traditional history of American labor, the legal framework of current labor-management relations, the structure and function of trade unions, models of collective bargaining, and contemporary labor issues.

LST 103 (ECO 103) three credits
Cities, Minorities, and Poverty

Review and analysis of major social problems faced by cities. Emphasis is placed on origin, causes, and possible solutions for poverty and minority problems.

LST 111 (ECO 111) three credits
Jobs and Discrimination

Basic analysis of problems of economic growth, job creation, and unemployment; structure of work and jobs will be explored, along with current issues surrounding the government's impact on inflation, taxation, and economic planning.

LST 205 (HST 205) three credits
African-American History I

A survey of the role of African-Americans in American life and culture from the colonial period to the 1890s.

LST 206 (HST 206) three credits
African-American History II

A continuation of the study of the role of African-Americans in American history, from the 1890s to the present.

LST 207/SOC 205 three credits
Industrial Society and Human Problems

An overview of modern society, particularly our own, with an emphasis on the problems and possibilities we face today.

LST 209 (HST 209) three credits
Women's History in the United States: Colonial to the Present

Survey of the history of women—black and white, native and immigrant, rich and poor—in the U.S. from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs. industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement.

LST 211/ENL 211 three credits
The American Dream

A study of the meaning of success as reflected in works ranging from those of Benjamin Franklin and Horatio Alger to the plays of Arthur Miller.

LST 218/ENL 218 three credits
Literature and Society

A study of the relationship between the individual and society through readings in modern literature.

LST 226/PHL 226 three credits
Marx

An introduction to the work of Karl Marx for those students who do not necessarily have philosophical backgrounds. Student will explore the philosophical and scientific phases of Mark's thought by examining his writings.

LST 240/SOC 240 three credits
Dynamics of Community Organization

Analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation expected in class discussions. In addition, mini-lectures, field simulations, roleplaying, guest speakers, and field observations will be utilized.

LST 249 (ANT/SOC 249, ENL 249)
three credits
The World of Work
Prerequisites: One introductory social science or English course and ENL 101, 102

An examination of the personal and social importance of work in human society through literary, sociological, and anthropological texts These issues will be explored: The meaning, value, and organization of work in non-industrial and industrial societies; the effects of value systems on the work process; the problems surrounding work in contemporary America (gender, age, race, class, worker/management relations), and the future of work.

LST 250 three credits
Problems in Labor Studies
Prerequisite: LST 101 or permission of instructor

Topics to be studied will be drawn from the following areas: Minorities in the Labor Movement: the role of women, Latinos, African-Americans, and Asian Americans in the development of the U.S. labor movement, exploration of the changing workforce in the U.S. and how the labor movement has dealt with this new reality; Contract administration and the law; union administration, etc.

LST 301 (SOC 301) three credits
Sociology of Work

The analysis of work in modern society, and how, historically, labor/management relations have shaped out lives.

LST 302 (HRM 301) three credits
Human Resources Management
Prerequisite: junior standing

An exploration of that part of management devoted to a people-centered approach and its integration with overall goals of organization. Emphasis is placed on employment, compensation, and training and development of individuals.

LST 305 (SOC 305) three credits
Political Sociology
Prerequisites: SOC 201, SOC/ANT 113, PSC 101, 102; or permission of instructor

An exploration of sociological perspectives on the study of power relationships, political communities, political processes, and institutions.

LST 310 (HST 310) three credits
American's Working Women

The experience of American working women—Black and white, native and immigrant, organized and unorganized—from the colonial period to the present day. Because work is defined as productive labor, this course will examine women as paid and unpaid workers—in the marketplace as well as in the home. Some of the areas of study will be women on the frontier, women in the mills and factories, labor union women, women in the professions, and the history and politics of housework.

LST 326 (PSC 326) three credits
Labor Relations: Law, Practice, and Policy

An examination of the political and legal framework of U.S. labor relations. The course will include analysis of legislation and Supreme Court and NLRB cases which shape national labor policy and define relations among workers, employers, and the state.

LST 331 (HRM 331) three credits
Industrial Relations and Labor Management
Prerequisites: HRM 301 and at least junior standing

Social background and present status of labor organizations. The course explores the many labor-management problems that are evident today and aims to help the students understand the various techniques employed in collective bargaining procedures.

LST 342 (ECO 342) three credits
Labor Economics
Prerequisites: ECO 231, 232

The labor force. The following topics are examined: wages in competitive and non-competitive markets; wage structures; inequalities and discrimination; impact of unions and social standards; indexation, inflation, and unemployment.

LST 343 (ECO 343) three credits
Economics of Sex and Race Relations
Prerequisites: ECO 231, 232; or permission of instructor

The theory of labor markets and the problem of discrimination. Current problems facing women and minorities will be examined. Existing program and trends will be explored.

LST 350 three credits
Issues in Labor Studies
Prerequisite: LST 250 or permission of instructor

Examination of contemporary issues facing labor. Topics will depend on student interests and needs. Examples of possible topics include: Technology and Labor; Jobs and the Global Economy; Occupational Safety and the Law; Labor-Management Cooperation; Productivity and Wages.

LST 354 (PSC 354) three credits
Contemporary Political Thought
Prerequisite: Upper-division standing

Survey of the recent ideological currents in advanced capitalist societies: neo-conservatism, neo-liberalism, syndicalism, postmarxian socialism, eco-anarchism, and corporate fascism. The course will focus on political thinkers who have made significant contributions to the interpretation of contemporary political and economic developments.

LST 356 (SOC 356) three credits
Wealth, Status, and Power in America

The study of the various ways in which different societies assign their members to higher and lower positions of prestige, power, and possessions. A sociological analysis of the ways in which a person's stratified rank influences personality and life opportunities in society.

LST 378 (HST 378) three credits
Slavery in the New World

The trans-Atlantic slave trade and slavery in the Americas from the sixteenth to the nineteenth century. Emphasis is placed on the beginning and development of the trans-Atlantic slave trade; moral issues, economics, and tactics of the trade; and comparisons of the slave societies of Brazil, the Caribbean, and the United States.

LST 391 (HST 391, WMS 391, AAS 391) three credits
Topics in African History
Prerequisites: HST 190 or HST 290 or written permission of the instructor

Advanced-level course for students with a background in African history. Topics will vary from year to year. Research papers will be required.

LST 402 (SOC 402) three credits
Sociological Theory
Prerequisites: SOC 101 or SOC 113 or ANT 113; and one advanced sociology course

The synthesizing and integrative functions of theory in the sociological enterprise. The course seeks to awaken an awareness of the nature and role of concepts in theory construction, and to highlight the gains and losses which accrue in all linguistic statements about the world. The work of Marx, Durkheim, Weber, Veblen, Sorokin, G.H. Mead, and R.K. Merton are given special attention, both as pioneering examples of theoretical innovation and as substantive points of departure for future inquiry.

LST 435 (HRM 435) three credits
Negotiations, Mediation, Arbitration
Prerequisites: MGT 322, HRM 332, and at least junior standing

Student participation in case studies in resolving disputes and grievances in labor relations. The nature of collective bargaining practices and agreements and the arbitration process are examined.

LST 436 (HRM 436) three credits
History of the Labor Movement
Prerequisites: MGT 311, HRM 331 and at least junior standing

The history and current nature of organized labor; the structure, policies, and practices of modern labor unions.

LST 450 three credits
Seminar in Labor Studies

A seminar in contemporary labor issues, offered either as LST 450 or as a cross-listed course from an appropriate discipline with an appropriate topic. This seminar is to be taken at the end of the student's work in the minor. Each student will be required to produce a research project.
LST 451 (HRM 452) three credits

Legal Aspects of Human Resources Management
Prerequisites: MGT 312, HRM 301, and at least junior standing

An introduction to the major areas of labor law, including hiring, affirmative action, performance appraisal and discrimination the workplace.

LST 452 (ECO 452) three credits
Manpower and Regional Development
Prerequisites: ECO 231, 232, or permission of instructor

Review of labor market problems and programs in growing and depressed regions, with special emphasis on New England. Attention focused on the impact of education, training and government manpower programs.

LST 453 (ECO 453) three credits
Work, Jobs, and Income
Prerequisites: ECO 231, 232, or permission of instructor

Study of changes in the labor force, the impact of labor market processes and how they affect work motivation, job performance and income distribution.

LST 495
Independent Study

LST 496
Directed Study

LST 497 three credits
Labor Studies Internship
Prerequisites: 6 credits in labor studies, upper-division standing, and permission of chair of the Labor Studies Committee.

Post-Baccalaureate Program

Individualized study for those who already hold a bachelor's degree.

UMass Dartmouth offers those who already hold a bachelor's degree the opportunity to meet new career or work demands or satisfy personal goals through an individualized Post-Baccalaureate Program (PBP). In Special Student status, these students pursue non-degree study leading to a certificate without receiving formal admission to a master's degree program. The PBP candidate receives the advantages of program planning with an advisor, a departmental commitment, and favorable timing for class registration. Depending on one's qualifications, courses in an individual's PBP may be at the graduate or undergraduate levels or combine the two.

After forming general plans about the program of studies desired, the student applies to the academic department in which the principal studies are to be pursued, where her/his needs are discussed and qualifications reviewed and a program of specific courses is selected. A PBP may be pursued in any academic department of the university that chooses to participate, and interdepartmental programs may also be proposed. Some departments will prepare "packages" of courses designed to meet known needs; others will rely on separate course selections to meet each candidate's needs individually. In the process of formulating a student's PBP, the advisor must consider the availability of course offerings, in terms of both anticipated scheduling and the likelihood of space being available; when more than one department is involved, the chairperson of the other department will be consulted.

The number of courses in a PBP is generally more than three but fewer than in a regular undergraduate minor. Students working toward PBP certification must maintain a minimum GPA of 2.0 in the listed courses, and the department is free to establish a higher minimum level of performance. The listing of courses for the PBP will be maintained in the student's registrar's office file. The department will indicate official completion of the PBP, which will be recorded on the transcript, and then issue a letter of verification.

The PBP is not a means of pursuing a formal graduate degree, a second undergraduate major or an undergraduate minor, which are available through the regular admission/re-admission programs of the university. Because the program does not lead to a degree, the PBP will not be available to those needing a temporary student visa.

Those interested may request a PBP packet at the offices of Undergraduate or Graduate Admissions, the Registrar, or an academic department. The packet describes the program and enrollment processes, indicates the documentation required from the applicant, and includes all necessary forms. Officers in Undergraduate and Graduate Admissions can provide advice and assistance to those making initial inquiries.

Prospective PBP students will bring the completed form to the department involved, along with their college/university transcripts showing courses and grades and completion of a baccalaureate degree (departments might require other forms of documentation, at their discretion). If agreement is reached to establish a PBP for an applicant, its specific courses and requirements will be recorded on a second form and the department chairperson's approval will be obtained (and Dean's if so stipulated for that College). The PBP thus serves like a contract between the student and department, establishing courses to be completed and other terms for the completion of the program and awarding of the post-baccalaureate certificate.

If a PBP is not agreed upon, the prospective student can return to the undergraduate Admissions Office for additional guidance.

PBP students may register during the previous semester, along with current juniors. As a condition, PBP students must receive timely departmental approval prior to each registration, to insure that advising and progress-monitoring occur. Without this approval, they must register along with other Special Students just before the beginning of the semester and will receive no priority of access to registration.

PBP students will pay the fees appropriate for Special Student status. Those who register the semester before must pay their fees at the time of registration. PBP students may request financial assistance through the Office of Financial Aid, applying for those forms of aid that are offered to students who already hold a bachelor's degree. PBP students are not eligible for graduate assistantships.

Pre-Law

Pre-Law Adviser

Pre-Law does not in itself constitute a major. Nevertheless, students who intend to enter law schools should undertake careful planning of appropriate topics of study around the field of their chosen major. Special attention should be given to building a foundation of skills in written and oral communication, research, calculation, and critical thinking.

The Pre-Law adviser assists all students who identify themselves as pre-law in their pursuit of admission to a professional school. Among the forms of assistance offered are the following:

- Reviewing each student's program and progress.
- Providing advice on course selections and design of a coherent pre-law program of study.
- Providing up-to-date information about law school admission requirements.
- Providing information about the Law School Admissions Test (LSAT) and advice about preparation for it.
- Assisting the candidate in assembling letters of recommendation.

Kevin Hargreaves History

Robert Wilder Political Science

Pre-Medical

The university offers sound and appropriate preparation for study at professional schools which train physicians, veterinarians, dentists, osteopaths, podiatrists, and physician's associates. Students may also complete approximately two years of a pre-pharmacy program at UMass Dartmouth before transferring to an institution with a college of pharmacy.

Students interested in pursuing any of these careers should consult with one of the Pre-Medical advisers as early as possible. An eight-member Faculty Premedical Advisory Committee counsels and assists pre-med students.

Students who wish to prepare for admission into graduate schools of medicine have many options open to them. By the judicious use of electives, any student within the College of Arts and Sciences can satisfy the undergraduate preparatory course requirements of most medical schools. Preparation for medical careers requires the completion of core courses in biology, chemistry, mathematics, physics, and frequently psychology. While pre-medical students at UMass Dartmouth most commonly major in biology or chemistry (in the pre-med or bio-chemistry options), the core courses required for preparation to enter medical school can be completed in combination with any major in the University. Students contemplating medical careers are encouraged to major in whatever discipline they find interesting and satisfying, but they should do this in consultation with the pre-medical faculty advisers.

Pre-Medical Advisers

Alan H. Bates Chemistry

Donald J. Mulcare Biology

Pre-Medical Advisory Committee

Robert Bento Physics

Russell R. Bessette Chemistry

Eileen Carreiro-Lewandowski Medical Laboratory Science

Joseph C. Deck Chemistry

Robert Griffith Biology

Barry R. Haimson Psychology

A Faculty Pre-Medical Advisory Committee assists all pre-medical (pre-medical, pre-dental, pre-veterinary, pre-paramedical) students in their pursuit of admission to a professional school.

- The committee meets at least once each semester with each student who has declared being pre-med. The committee reviews the student's program and progress and makes recommendations.
- The committee serves as the principal source of advice in course selection for the pre-medical program.
- The committee actively seeks up-to-date information about medical school admission requirements and makes direct contact with the medical schools whenever possible.
- The committee prepares letters of recommendation going to the medical schools.
- The committee advises the Student Premedical Association and communicates frequently with pre-med students through e-mail and a university electronic bulletin board.

Women's Studies Minor

The women's studies minor brings together the resources of the traditional disciplines in exploring women's position in and contributions to society. In addition to basic academic and analytic capacities, Women's Studies students will develop:

- knowledge about the contributions of women to society: historical, scientific, political, literary, artistic, economic, philosophical, educational, psychological, religious, etc.;
- an understanding of the dynamics and history of the traditionally unequal social, political, and economic status of women;
- a familiarity with gender-based differences between males and females as they have developed in various cultures;
- an understanding of how the methodologies of the various disciplines have to be altered to deal adequately with women's experience of society; and
- a capacity to analyze current events from a Women's Studies perspective and to make informed political and ethical choices.

Women's Studies is the discovery of the lives of women, not only their frustrations and difficulties, but also their courage, cooperation, struggles, and achievements.

Participating Faculty

Roberta H. Hazen Aaronson Sociology and Anthropology

Diane Barense Philosophy

David Berger Economics

John Bush Sociology

Eileen Carreiro Medical Laboratory Science

Magali Carrera Art History

John J. Carroll Political Science

Julie Cleare Psychology

Phyllis Currier Nursing

Tish Dace English

Jean Doyle Political Science

Ray Dumont English

Morton Elfenbein Psychology

Janet Freedman Library Services/ Education

Geraldine Gamburd Sociology

Louise Habicht English

Sue E. Houchins (English, Director)

Cathy Houser English

Donna L. Huse-Sears Sociology

Barbara R. Jacobskind English

Gerard M. Koot History

Rita Duarte-Marinho Political Science

Betty L. Mitchell History

Peter Owens English

Geraldine Phipps History

Roger Sorkin English

Gloria Waite History

Women's Studies Minor

Almost any academic major can be combined with a Women's Studies minor. Though a student may take WMS courses at any time, the minor cannot be formally declared until a student has earned 54 credits.

Requirements for the minor
Eighteen units of WMS credit, including at least three 300- or 400-level courses. Courses must be taken from at least three different departments. Students must maintain an overall GPA of 2.0 and a GPA in their major of 2.5.

Multidisciplinary Studies and Humanities/Social Sciences Majors
Although there is no Women's Studies major, as such, students in the College of Arts and Sciences interested in the program may elect to design an individualized course of study through the Multidisciplinary Studies major (requirements for which are located elsewhere in this catalogue). Students wishing to build their major around Women's Studies should see the Director of the Women's Studies Program.

Humanities/Social Science majors may also develop a Women's Studies emphasis as a part of that major. Students interested should see their Humanities/Social Sciences adviser.

Distribution Credit for Women's Studies Courses
WMS courses satisfy distribution requirements in the department in which they are cross-listed and as specified in the course description. Students can take individual courses from the Women's Studies course offerings. Some WMS courses satisfy social science or humanities distribution requirements; all satisfy general elective requirements.

WMS 101 three credits
Introduction to Women's Studies

A multidisciplinary perspective on important issues facing women today: domestic roles, childbirth, the health care system, work, sexuality, and women in the third world. Other cultural contexts which may point the way toward transformation of woman's place in society are also investigated through a teaching method which stresses student involvement. Satisfies Social Science distribution requirement.

WMS 102 (PHL 102) three credits
Philosophical Aspects of Feminism

An introduction to philosophical reasoning, analysis of arguments and developing of critical skills, through a consideration of various topics relevant to feminism. Topics may include: presuppositions about woman's nature, abortion, sex equality, affirmative action. Satisfies Humanities distribution requirement.

WMS 103 (ECO 103) three credits
Cities, Minorities, and Poverty

Review and analysis of major social problems faced by cities; emphasis on origin, causes and possible solutions for poverty and minority problems. Freshman elective.

WMS 107 (HST 207) three credits
Women's History in the United States: Colonial to the Present

Survey of the history of women—black and white, native and immigrant, rich and poor—in the U.S. from colonial times to the present. Among the topics to be discussed are: women's role in agrarian vs. industrial society; women and the family; women in the labor movement; female friendships and organizations; the frontier experience; women's suffrage; sex and sex roles; and the birth and growth of the feminist movement. Satisfies Humanities distribution requirement.

WMS 110 three credits
Women in Contemporary American Society

This course explores mother-daughter relationships, women and religion, changing family life, the impact of race and ethnicity on women, and other topics pertinent to women's experience in contemporary American society. Satisfies Social Science distribution requirement.

WMS 111 (ECO 111) three credits
Jobs and Discrimination

Basic analysis of problems of economic growth, job creation, and unemployment; structure of work and jobs will be explored, along with current issues surrounding the government's impact on inflation, taxation, and economic planning. Freshman elective.

WMS 200 three credits
Special Topics in Women's Studies

Topics will be determined by the individual faculty member and will therefore vary. This course will be cross-listed with an academic department.

WMS 203 (SOC 203) three credits
Social Work I
Prerequisite: SOC 101 or 102

This course will provide students with a theoretical framework and a cross-cultural perspective for understanding the role of the social services in our society. An exploration of the history, politics and economics of our social welfare system will be undertaken through discussion, guest speakers and field work.

WMS 204 (PSY 204) three credits
Social Psychology
Prerequisite: PSY 101

The study of experimental findings, theoretical and methodological issues in understanding the individual in a social context.

*When a Women's Studies project is elected.

WMS 206 three credits
Career Decision-Making for Women

This course explores career decision-making for women both in practical terms and in the light of contemporary issues and problems.

WMS 210 (PSY 210) three credits
Research Methods
Prerequisites: PSY 101, 205

WMS 212 (HST 212) three credits
The Case of Lizzie Borden
3 hours lecture

Using primary source documents such as newspapers, wills, city directories, the federal census, etc., students will study the fascinating case of Lizzie Borden of Fall River who was accused of the brutal axe murder of her father and step-mother. Students will develop their skills in historical methodology, and participation in class discussions is emphasized.

WMS 228 (SOC 228) three credits
Sex Roles and Sexuality in American Society
Prerequisite: Permission of instructor

The changing definitions of the roles of men and women in American Society from our experience and from a social, historical, biological perspective. Class sessions will include the following: the development of male and female in the evolutionary system; human and animal sexuality; cross-cultural sexual identities; images of male and female in American literature, movies and the popular imagination; socialization and the development of sexual identity; problems of courtship and intimacy. Satisfies Social Science distribution requirement.

WMS 232 (PSC 232) three credits
Women and the Law

The constitutional and legal status of women in America. Topics include the scope of the equal protection clause, the right to privacy, and the "special" nature of women. The emphasis is upon the primary documents such as judicial opinions and statutes. Satisfies Social Science distribution requirement.

WMS 240 (SOC 240) three credits
Dynamics of Community Organization*

An analysis of the theory and practice of community organizing with particular emphasis on the development of social action and community development techniques on the grass-roots level. This course will be conducted as a seminar with student participation expected in class discussions. In addition, mini-lectures, field simulations, role-playing, guest speakers and field observations will be used. Satisfies Social Science distribution requirement.

WMS 245 (ENL 245) three credits
Images of Women in Literature

A study of archetypes and stereotypes of women in literature from the ancient world to the present . Traditional literary criticism and the way authors have used images of women to create character, plot, and so on, will be examined. Satisfies Literature distribution requirement.

WMS 246 (ENL 246) three credits
Women Writers

When the subject matter is related to the minor: an examination of the relationship between the woman writer and her work through a study of literature by and about Black women. Satisfies literature distribution requirement.

WMS 248 (ANT 248) three credits
Alternative Communities*

An examination of the quality of experience in an advanced industrial society and alternatives for regaining control over our life choices and livelihood. The technological alternatives to mass production are considered, and egalitarian communities in which members jointly control decisions through participation in local economies, politics, and technology are studied. Satisfies Social Science distribution requirement.

WMS 300 three credits
Topics in Women's Studies

Special topics in Women's Studies. The topics will be determined by the faculty member and will therefore vary.

WMS 305 three credits
Feminist Theory and Practice

The theoretical works of contemporary feminism from Simone deBeauvoir to Adrienne Rich. The readings and discussion will be related to an examination of how theory has been applied in the lives of individual women and in the practices of women's organizations and institutions. Satisfies Social Science distribution requirement.

WMS 310 (HST 310) three credits
America's Working Women

This course will examine the experience of American working women: black and white, native and immigrant, organized and unorganized from the colonial period to the present day. Because work is defined as productive labor, this course will examine women as paid and unpaid workers in the marketplace as well as in the home. Some of the areas of study will be women on the frontier, women in the mills and factories, labor union women, women in the professions, and the history and politics of housework. Satisfies Humanities distribution requirement.

*When a Women's Studies project is elected.

WMS 317 (HST 317) three credits
History of European Women

Critical examination of women's history from the Renaissance to the present. The course will deal both with remarkable and ordinary women. Extensive use will be made of recent research on the history of the family and social demography as well as the more traditional areas of political, intellectual, and economic history. While emphasizing Western Europe, the course will include some material from the Americas and other areas. Satisfies Social Science distribution requirement.

WMS 318 (HST 318) three credits
Women's Biography and Autobiography

This course will examine the lives of various women in the United States, Great Britain, and elsewhere both from a literary and historical perspective. Examples of women whose lives will be studies are Charlotte Bronte, Sarah and Angelina Grimke, Charlotte Perkins Gilman. Satisfies Humanities distribution requirement.

WMS 324 (SOC 324 or ANT 324)
three credits
Women in Contemporary Society

The roles and status of women in contemporary societies are examined using an historical and comparative approach. The course integrates theory of sexual inequality and its relation to other forms of social inequality and empirical analysis of the actual conditions of women. Women's participation in social movements in the U.S. and Third World countries is addressed as part of the analysis of the changing roles and statuses of women. Satisfies Social Science distribution requirement.

WMS 327 (ANT 327) three credits
Myth and Ritual*
Prerequisite: ANT 111 or 113

Exploration of the significance of myth and ritual and the history of its study. Myths and rituals of a world wide sample are analyzed from functional, structural and symbolic points of view. Satisfies Social Science distribution requirement.

WMS 332 (PSC 332) three credits
Sex Roles and Politics

The impact of gender as a variable in American politics. The course analyzes women in the electorate as office holders and as political participants, including participation in political organizations and lobbying groups. The latter part of the course addresses applied politics in campaign management.

WMS 336 (SOC or ANT 336)
three credits
Women and Social Policy

Family policy issues in the U.S. such as child care, family leave, job equity, and marriage and family relationships. U.S. public policy is compared with that of other countries.

WMS 338 (PSC 338) three credits
Woman As Citizen

The particular role which gender plays in defining citizenship. An important theme for analyzing the citizenship status of women stems from the public/private dilemma. Therefore, the course material will develop a critical analysis of that dilemma and how, with corollary concepts, it defines the citizenship status of contemporary American women. This course explores a range of citizen activities the "Gender Gap", Women in Public Office and Women Interest Groups. Satisfies Social Science distribution requirement.

WMS 339 (PSC 339) three credits
Women and Public Policy

The course is designed to develop an understanding of the public policy process, of how women's issues fare in that process and why, and of the strengths and weaknesses of women as participants in political process. The course will be taught from the feminist perspective and will thus expand the students' awareness of alternative approaches to political phenomena. Satisfies Social Science distribution requirement.

WMS 343 three credits
Teaching and Learning About Women
The implications of gender and sex-role stereotyping on the educational aspirations and experiences of learners and how these intersect with class and racial bias. Through readings from philosophy, psychology, and literature students will explore the roots of gender-based attitudes and consider if and how assigned learning attributes should be changed or utilized to advance women's success as learners. This course satisfies social science distribution requirement.

WMS 344 (ECO 343) three credits
The Economics of Sex and Race Discrimination
Prerequisites: ECO 231, 232; or permission of instructor

The theory of labor markets and the problem of discrimination. Current problems facing women and minorities will be examined. Existing programs and trends will be explored.

*When a Women's Studies project is elected.

WMS 346 (ENL 346) three credits
Portraits of Older Women
Prerequisite: ENL 102

This team-taught course presents a multidisciplinary perspective of the phenomena of women and aging in American society. The experiences of older women are explored through literature, oral histories, and intergenerational class projects to determine the forces that affect quality of life and productivity in later life.

WMS 347 (ENL 347) three credits
Special Topics in Women's Literature

The course explores a topic selected by the instructor. Some examples are Women's Non-Fiction Prose, Women's Biography and Autobiography, and Contemporary American Women Writers. Satisfies Literature distribution requirement.

WMS 348 (ENL 348) three credits
American Women Playwrights
Prerequisite: ENL 102

Developed ability to independently analyze, evaluate, compare and contrast, and appreciate plays by 20th-century American women playwrights and insights into their themes and the images of women which they create.

WMS 355 (SOC 355) three credits
Social Work II*
Prerequisite: SOC 203

The knowledge, values and skills that underlie social work practice. We will consider the roles that social workers assume, the settings in which they work and the methods of intervention that are used in working with individual, groups, and communities. Issues related to cross-cultural social work will also be explored.

WMS 360 (ANT 360) three credits
Structures of Power and Inequality*
Prerequisites: SOC 101, ANT 111, or SOC/ANT 113

The many bases of inequality, including the artificial distinctions of age, sex, race, and hereditary position in a family line, occupation, ethnicity, and nationality. Talents and temperaments are often specialized to one sex, one class, one caste, etc. This course will explore what bases of inequality (whether one or many) are found within a number of social systems. These alternate social forms of inequality will be cross-compared. Satisfies Social Science distribution requirement.

WMS 363 (SOC 363 or ANT 363) three credits
Environment and Development
Prerequisite: SOC 101 or ANT 111 or SOC/ANT 113

A search for social change which will improve conditions for all and be beneficial to the long-run survival and future of the planet and our human species. The course discusses action strategies for constructive group living by self-reliant participation in productive activities on local levels and beyond.

WMS 364 (HST 364) three credits
Social and Cultural History of Russia

Topics pertaining to social classes, the development of serfdom, religion, and art and literature in Russia from the 9th Century to the present.

WMS 369 (ANT 369) three credits
Visual Symbols and Myth*
A study of the underlying structure and content of visual symbols, myth, and ritual, and an analysis of the social implications of these systems. Satisfies Social Science distribution requirement.

WMS 370 (ENL 370) three credits
Women, Writing, and the Media
Prerequisite: ENL 260

Studying and writing about issues related to gender, gender-specific language, and the representation of women in various forms of media. The course focuses on discovering, exploring, researching, and writing about women's issues.

WMS 375 (PSY 375) three credits
Psychology of Sex Difference
Prerequisites: PHL 101, 205, 210

This course is designed to stimulate discussion among men as well as women, by exploring topics such as the development of sex differences, socialization practices, attitudes, values and role expectations which affect the self-concept and interpersonal relationships. Satisfies Social Science distribution requirement.

WMS 391 (HST 391, LST 391, AAS 391) three credits
Topics in African History
Prerequisites: HST 190 or HST 290 or written permission of the instructor

Advanced-level course for students with a background in African history. Topics will vary from year to year. Research papers will be required.

WMS 400-498
Seminars

WMS 405 (ANT 405) three credits
Anthropological Theory*
An analysis of the major theoretical orientations of anthropologists toward the two central anthropological questions: the nature and origin of the human species and the nature and origin of culture and civilization. Satisfies Social Science distribution requirement.

*When a Women's Studies project is elected.

WMS 408 (SOC 408) three credits
Social Service Internship*

Course for students interested in social service careers. Gain valuable "hands-on" experience working in a social service agency/organization on campus or in the community. Students meet as a Seminar class to reflect on experience, to integrate practice with theory, and to further develop social work skills. Meet with instructor before registering to discuss agency placement.

WMS 421 (ENL 421) three credits
Seminar in an American Literature Theme*

Satisfies Literature distribution requirement.

WMS 422 (HST 422) three credits
Seminar in U.S. Women's History

Satisfies Humanities distribution requirement.

WMS 495
Independent Study

WMS 496
Directed Study

WMS 900
Contract Learning

Division of Continuing Education

The Division of Continuing Education is committed to serve the needs of those students who choose to pursue a degree on a part-time basis during evening hours or in the summer.
Any person who has graduated from high school or holds a Certificate of General Education Development (GED) is entitled to enroll in undergraduate courses offered through the Division of Continuing Education. All credit courses offered are University of Massachusetts Dartmouth courses, and the grades earned are reflected in the student's grade point average at the university. Students may enroll in a single course, a number of courses, or a program leading to a Bachelor's degree.

In addition, each term, courses are offered for personal or professional development which carry no academic credit, and a few courses for professional certification may be offered which, at their completion, award Continuing Education Units (CEUs).

Many students who attend the university through the Division of Continuing Education are working full time, have family responsibilities, and have a limited amount of time available to study and attend courses. These students may have attended a community college, may have started their coursework at the university directly after high school, or may have had years elapse between their high school and university careers. All are welcome and are encouraged as they achieve each level of their education. Whether students register for courses each Fall term, each Spring term, or continue through many terms, each is advised individually while progressing toward personal academic goals.

This flexible, individualized learning environment provides the opportunity for students, including those who are unsure of their ability to do college work, to explore academic courses, to return to school at a pace of their own choosing, to continue their education while enrolled in a degree program at another college or university, or to explore their personal interests.

Phone: 508 999-8290

Degree Candidacy
A student may earn 30 credits (the equivalent of 10 credit courses) before applying for degree candidacy or declaring a major. Anyone who has completed 30 credits with a minimum grade point average of 2.0 (the equivalent of a C average) is eligible to be accepted into a University of Massachusetts Dartmouth degree program leading to a Bachelor's degree in one of the majors listed here:

Undergraduate Degree Programs
At present, the Division of Continuing Education offers majors in the following disciplines:

College of Arts & Sciences
English
Humanities and Social Sciences
Psychology
Sociology
Sociology/Criminal Justice

College of Business & Industry
Accounting
Management

For access to other majors, DCE students apply for admission through the Office of Undergraduate Admissions. When a student is accepted into a degree program, those courses that were successfully completed and which fulfill the requirements of the program will count toward graduation. All courses taken will appear on the student's transcript and will be calculated into the student's grade point average.

Tuition and Fees
Students who register through the Division of Continuing Education for credit-bearing courses pay charges based on the Fee Schedule for that Division. Students are charged a basic fee per academic credit and additional service fees. The listing of specific charges is available from the Office of Continuing Education. Tuition and fees are subject to change at the discretion of the governing authorities of the university.

Academic Counseling and Financial Aid Information
A staff of experienced professionals is available Monday through Thursday evenings to assist students in planning programs suitable to educational and career objectives. Work experience and other learning experiences may, in some instances, be translated into academic credit (see below).

The full range of financial aid programs is available to the Continuing Education student: grants, low interest educational loans and scholarships. Individuals are strongly encouraged to explore their eligibility for these programs.

Credit for Non-Traditional Prior Learning
Non-traditional prior learning is an innovative program that enables participants to gain academic credit based on previous learning experiences.
It is designed for the returning adult student who would like to earn credits toward a degree, and is available to degree-seeking students. An individual's college-level skills and knowledge that have derived from prior learning or work experience will be documented during a one-semester workshop. Evaluation for credit of the documented learning experience will be completed at the end of each academic year.

Student Government
The Continuing Education Student Government (CESG) is the official representative voice of part-time students. CESG recommends all allocations for expenditures of student fees, and is instrumental in helping UMass Dartmouth respond to the special needs of Continuing Education students.
A nominal fee is assessed each semester to support the CESG and activities and entities such as the Campus Center, the CESG scholarship, get-togethers, the Cooperative Learning Center, and a newsletter.

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Aaronson, Roberta Hazen Professor of Sociology and Anthropology (1978); B.A. 1969, University of Rhode Island; M.S., 1975, University of Minnesota

Adams, Robert T. Professor of Music (1978); A.B. 1968, University of California, Conservatoire National Superieur de Musique 1968-69, Het Amsterdamsch Convervatorium 1970-72; M.A. 1973, Ph.D. 1975, University of California

Ahearn, Marie L. Professor of English (1965); A.B. 1953, Regis College; Ed.M. 1958, Tufts University; A.M. 1961, Boston College; Ph.D. 1965, Brown University

Ahmed, Ardsher Assistant Professor of Electrical and Computer Engineering (1993); B.S. 1985, N.E.D. University of Engineering and Technology, Pakistan; M.S. 1986, California Institute of Technology; Ph.D. 1992, State University of New York at Binghamton

Ainscough, Thomas L. Assistant Professor of Marketing and Business Information Systems (1994); B.S. 1987, Brigham Young University; M.B.A. 1993, Idaho State University; Ph.D. 1994, University of Georgia

Ali, Shaukat Professor of Political Science (1970); B.A. 1942, M.A. 1945, M.P.A. 1964, University of Punjab, India; D.P.A. 1965, University of Southern California

Allen, William R. Associate Professor of Management and Human Resources (1992); B.Sc. 1960, U.S. Coast Guard Academy; M.B.A. 1971, Ph.D. 1975, University of Florida

Altabet, Mark A. Associate Professor of Chemistry (1995); B.S. 1979, State University of New York at Stony Brook; Ph.D. 1984, Harvard University

Antonsen, Lasse B. Gallery Director (1987); M.A. 1986, Tufts University

Aruri, Naseer H. Professor of Political Science (1965); B.A. 1959, American International College; M.A. 1961, Ph.D. 1967, University of Massachusetts Amherst

Asato, Yukio Professor of Biology (1971); B.A. 1957, M.S. 1966, Ph.D. 1969, University of Hawaii

Barense, Diane Professor of Philosophy (1978); B.A. 1970, University of Texas; Ph.D. 1979, Temple University

Bar-Yam, Zvi Commonwealth Professor of Physics (1964); B.S. 1958, M.S. 1959, Ph.D. 1963, Massachusetts Institute of Technology

Barkman, Beryl Associate Professor of Accounting and Finance (1987); B.A. 1942, M.B.A. 1947, University of Chicago; Ph.D. 1988, University of South Carolina; Certified Management Accountant 1984, State of North Carolina

Barnes, Nora Ganim Professor of Marketing and Business Information Systems (1984), B.A. 1972, Rhode Island College; M.A. 1973, University of Rhode Island; Ph.D. 1979, University of Connecticut

Barrow, Clyde W. Associate Professor of Political Science (1987); B.A. 1977, Texas A & I University; M.A. 1979, Ph.D. 1984, University of California at Los Angeles

Barry, Robert E. Professor of Design (1969); B.F.A. 1953, M.A.T. 1967, Rhode Island School of Design

Bates, Alan H. Professor of Chemistry (1971); B.S. 1965, Allegheny College; A.M. 1966, Ph.D. 1970, Harvard University

Bento, Robert Professor of Physics (1961); B.S. 1956, Providence College; M.S. 1959, University of Maryland

Bergandy, Jan Professor of Computer and Information Sciences (1983); M.S. 1976, Technical University of Poznan; M.S. 1976, Adam Mickiewicz University; Ph.D. 1980, Technical University of Poznan

Berger, David E. Professor of Economics (1972); B.A. 1963, Temple University; M.B.A. 1966, Drexel University; M.A. 1968, Ph.D. 1972, Washington University

Bergeron, Dorothy A. Associate Professor of Medical Laboratory Science (1983); B.S. 1970, Rhode Island College; Certified 1970, Rhode Island Hospital School of Medical Technology; M.S. 1977, University of Vermont

Bessette, Russell R. Professor of Chemistry (1968); B.S. 1962, University of Rhode Island; M.S. 1965, Ph.D. 1967, University of Massachusetts Amherst

Bianco, Louis G. Associate Professor of Mathematics (1984); B.A. 1971, Bradley University; M.A. 1983, Ph.D. 1988, Boston University

Biron, Christina Makara Associate Professor of Foreign Literature and Languages (1988); B.A. 1979, M.A. 1981, University of Michigan; Ph.D. 1988, Ohio State University

Bobrick, James Associate Professor of English (1988); B.A. 1964, Boston University; Ph.D. 1973, Boston University

Boerth, Donald W. Professor of Chemistry (1978); B.S. 1969, North Dakota State University; Ph.D. 1974, University of Minnesota

Breuer, Miklos Adjunct Professor of Textile Sciences (1991); B.Sc. 1949, Technical University of Budapest, Hungary; M.Sc. 1951, Hebrew University of Jerusalem; Ph.D. 1958, Weizman Institute of Science, Israel

Bronstad, Joseph A. Professor of Foreign Literature and Languages (1973); B.A. 1966, Lawrence University; M.A. 1968, University of Wisconsin; Ph.D. 1975, University of Connecticut

Brown, David A. Assistant Professor of Electrical and Computer Engineering (1995); B.S. 1985, University of Rhode Island; M.S. 1988, Ph.D. 1991, Naval Postgraduate School

Buckley, Suzann Dean, College of Arts and Sciences (1993); Professor of History (1993); A.B. 1965, Regis College; M.A. 1967, Mount Holyoke College; Ph.D. 1972, Duke University

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Bush, John E. Special Assistant for Multicultural Affairs (1995); Professor of Sociology and Anthropology (1973); B.A. 1950, Delaware State College; M.S. 1954, Westminister College; M.A. 1968, Ph.D., 1976, University of Pittsburgh

Butler, Martin J. Professor of History (1963); B.A. 1956, Providence College; M.A. 1957, Boston College; Ph.D. 1972, Pennsylvania State University

Caliri, Victor P. Professor of Psychology (1973); B.S. 1953, Ed.M. 1954, C.A.G.S. 1972, Boston University; M.A. 1963, Holy Cross College; Ph.D. 1977, Boston College

Campbell, Ronald A. Professor of Biology (1971); B.S. 1965, Roanoke College; M.A. 1967, University of Richmond; Ph.D. 1971, Iowa State University

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Carlson, Eleanor Professor of Music (1973); Chairperson, Department of Music; B.M. 1959, Oberlin Conservatory; M.M. 1960, Indiana University; D.M.A. 1974, Boston University

Caron, Paul R. Professor of Electrical and Computer Engineering (1970); B.S. 1957, Bradford Durfee College of Technology (UMass Dartmouth); M.S. 1960, Ph.D. 1963, Brown University; Registered Professional Engineer

Carreiro-Lewandowski, Eileen Professor of Medical Laboratory Science (1981); B.S. 1975, Rhode Island College; Certified 1975, The Memorial Hospital of Rhode Island School of Medical Technology; M.S. 1979, University of Kentucky

Carrera, Magali M. Professor of Art History (1977); Chairperson, Department of Art History, B.A. 1972, Arizona State University; M.S. 1974, M. Phil. 1976, Ph.D. 1977, Columbia University

Carroll, John J. Professor of Political Science (1979); B.A. 1965, Northeastern University; M.A. 1972; Ph.D. 1977, Brown University

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Caverly, Robert H. Professor of Electrical and Computer Engineering (1983); Chairperson, Department of Electrical and Computer Engineering; B.S.E.E. 1976, M.S.E.E. 1978, North Carolina State University; Ph.D. 1983, The Johns Hopkins University

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Chopoorian, John A. Professor of Marketing and Business Information Systems (1977); Chairperson, Department of Marketing/Business Information Systems; B.S. 1954, Brown University; Ph.D. 1960, Florida State University

Christian, Ellen G. Professor of Institutional Nursing (1974); B.S. 1969, Boston University; M.S. 1973, University of Colorado

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Collison, George Assistant Professor of Education (1993); B.A. 1979, Tufts University; M.A.T. 1975, Smith College; Ed.D. 1992, University of Massachusetts Amherst

Colt, LeBaron C., Jr. Professor of Biology (1982); B.A. 1953 Trinity College; Ph.D. 1961, Boston University

Conboy, John K. Associate Professor of Psychology (1986); B.A. 1970, University of Rhode Island; M.S.Ed. 1974, University of Maine; M.S. 1976, Murray State University; Psy.D. 1982, Massachusetts School of Professional Psychology

Corriveau, Donald P. Professor of Psychology (1980); B.A. 1973, Providence College; M.A. 1975, Ph.D. 1978, University of Rhode Island

Cory, Lester W. Professor of Electrical Engineering Technology and Electrical and Computer Engineering (1963); B.S.

1963, Bradford Durfee College of Technology (UMass Dartmouth); M.S. 1970, Northeastern University; M.Ed. 1974, Bridgewater State College

Costa, Antonio H. Professor of Electrical and Computer Engineering (1985); B.S. 1983, M.S.E.E. 1985, Southeastern Massachusetts University (UMass Dartmouth)

Creamer, David J. Professor of Mechanical Engineering (1964); B.S. 1958, Bradford Durfee College of Technology (UMass Dartmouth); M.S. 1960, University of Massachusetts Amherst; Registered Professional Engineer

Creighton, Richard J. Professor of Fine Arts (1981); B.A. 1975, University of New Hampshire; M.F.A. 1981, Pennsylvania State University

Cressy, Peter H. Chancellor (1993); Professor of Management and Human Resources (1993); B.A. 1963, Yale University; M.S. 1973, George Washington University; M.S. 1973, Naval War College; M.B.A. 1974, University of Rhode Island; Ed.D. 1989, University of San Francisco

Currier, Phyllis Associate Professor of Institutional Nursing (1980); B.S. 1967, Salve Regina College; M.S. 1972, University of Rhode Island; Ed.D. 1991, Boston University

Curry, Thomas J. Dean, College of Engineering (1994); Professor of Electrical and Computer Engineering (1983); B.S. 1964, Southeastern Massachusetts University (UMass Dartmouth); M.S. 1966, Worcester Polytechnic Institute; Ph.D. 1975, University of Rhode Island

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Dawson, Leslie M. Professor of Marketing/Business Information Systems (1994); B.B.A. 1960, Iona College; M.A. 1963, University of Toledo; Ph.D. 1968, Michigan State University

Deck, Joseph C. Professor of Chemistry (1987); Chairperson, Department of Chemistry; B.S. 1960, Duquesne University; M.S. 1964, Ph.D. 1966, University of Illinois

de la Ronde, Alma Davenport Professor of Design (1982); B.F.A. 1970, M.F.A. 1975, Rhode Island School of Design

DeJesus, Ora Associate Professor of Community Nursing (1977); R.N. 1966, Newton Junior College; B.S. 1975, Salve Regina College; M.S. 1976, G.N.P. 1977, Boston University

Desmarais, Armand Professor of Education (1984); B.S. 1963, Bryant College; M.A. 1971, Suffolk University; Ed.D. 1976, Nova University

Deveau, Roger J. Professor of Marketing and Business Information Systems (1970); B.S. 1965, Southeastern Massachusetts University (UMass Dartmouth); M.B.A. 1967, Texas A & M University; D.Ed. 1976, Boston University

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Dills, William L., Jr. Professor of Chemistry (1982); B.S. 1967, Juniata College; Ph.D. 1973, University of Vermont

DiPippo, Ronald Professor of Mechanical Engineering (1967); B.S. 1962, M.S. 1964, Ph.D. 1966, Brown University

Dluhy, Nancy Professor of Institutional Nursing (1981); B.S.N. 1967, University of Delaware; M.S.N. 1981, Ph.D. 1993, University of Rhode Island

Doherty, Karon Associate Professor of Design (1988); B.F.A. 1979, Kansas City Art Institute; M.F.A. 1981, New York State College of Ceramics

Donnelly, Paul A. Professor of Psychology (1979); B.A. 1971, Providence College; M.A. 1974, Assumption College; Ed.D. 1980, Boston University

Dorris, James Professor of Management and Human Resources (1983); B.A. 1966, Western Kentucky University; M.F.A. 1968, University of Georgia; Ph.D. 1975, Southern Illinois University

Douglas, Donald S. Professor of Biology (1983); A.B. 1957, Oberlin College; Ph.D. 1963, Duke University

Dow, Kathy J. Assistant Professor of Accounting and Finance (1994); A.B. 1970, Rutgers University; M.S.B.A. 1978, University of Massachusetts Amherst; M.B.A. 1982, D.B.A. 1989, Boston University

Dowd, John P. Professor of Physics (1967); B.S. 1959, Ph.D. 1966, Massachusetts Institute of Technology

Doyle, Jean Professor of Political Science (1973); Chairperson, Department of Political Science; B.A. 1965, Oberlin College; M.A. 1968, Ph.D. 1973, Boston University

Dufresne, Shirley B. Visiting Lecturer of Institutional Nursing (1979); B.S. 1976, Salve Regina College; M.S. 1978, Boston University

Dumont, Raymond A. Professor of English (1981); B.A. 1969, M.A.T. 1971, University of Massachusetts Amherst; D.A. 1979, Idaho State University

Eckhardt, Barbara Associate Professor of Design (1988); B.F.A. 1979, Cleveland Institute of Art; M.F.A. 1983, Cranbrook Academy of Art

Edgar, Robert Kent Professor of Biology (1968); Chairperson, Department of Biology; B.A. 1965, University of Virginia; M.S. 1968, Ph.D. 1970, Rutgers University

Einstein, Walter O. Professor of Management and Human Resources (1985); B.A. 1955, Fresno State College; M.S. 1975, University of Southern California; Ph.D. 1981, Syracuse University

Elfenbein, Morton H. Professor of Psychology and Management and Human Resources (1970); A.B. 1965, M.A. 1967, Ph.D. 1970, Boston University

Elliott, Willoughby R. Professor of Fine Arts (1967); B.F.A. 1965, Chouinard Art Institute; M.F.A. 1967, Rhode Island School of Design

El Wakil, Sherif D. Professor of Mechanical Engineering (1987); Chairperson, Department of Mechanical Engineering; B.S. 1965, Cairo University; M.S. 1969, Al-Azhar University; Ph.D. 1972, Birmingham University, England

Esposito, Frances F. Professor of Economics (1967); B.A. 1961, St. Francis College; M.A. 1962, Fordham University; Ph.D. 1967, Boston College

Estes, Lee Edward Professor of Electrical and Computer Engineering (1971); B.S.E.E. 1965, Southeastern Massachusetts University (UMass Dartmouth); M.S.E.E. 1967, Ph.D. 1969, Worcester Polytechnic Institute

Fain, Gilbert Professor of Electrical and Computer Engineering (1968); B.S.E.E. 1958, M.S.E.E. 1961, Ph.D. 1967, University of Rhode Island

Fasano, Carl Visiting Lecturer of Design (1992); B.F.A. 1982, Cornell University; M.F.A. 1982, Yale School of Art

Fater, Kerry H. Associate Professor of Institutional Nursing (1992); B.S.N. 1972, Villanova University; M.S. 1979, University of Rhode Island; Ph.D. 1985, University of Connecticut

Faulkenberry, Richard Assistant Professor of Mathematics (1990); B.A. 1983, Duke University; Ph.D. 1990, University of Maryland

Felder, Joan Professor of Medical Laboratory Science (1962); A.B. 1956, Barnard College; M.Ed. 1960, Boston University; M.S. 1968, Northeastern University

Fennessey, Neil M. Visiting Lecturer in Civil andEnvironmental Engineering (1995); B.S. 1975, B.S. 1983, University of Massachusetts Amherst; S.M. 1986, Massachusetts Institute of Technology; PhD. 1994, Tufts University

Fine, Dana Associate Professor of Mathematics (1989); B.S. 1983, Stanford University; Ph.D. 1989, Massachusetts Institute of Technology

Fine, Helene S. Associate Professor of Management and Human Resources (1988); A.B. 1959, University of Chicago; M.Ed. 1978, Chicago Consortium of Colleges and Universities and Concordia College; M.S.T. 1979, University of Chicago; Ph.D. 1987, Northwestern University

Fisher, Elaine Professor of Design (1973); B.F.A. 1961, Carnegie-Mellon University; M.DesS. 1989, Harvard University

Fisher, Lorraine Visiting Lecturer of Institutional Nursing (1987); B.S. 1958, Boston University; M.S. 1986, University of Rhode Island

Foley, Joseph Professor of English (1982); B.A. 1951, Holy Cross College; M.A.T. 1957, Boston College; Ph.D. 1963, Harvard University

Foley, Patrick Joseph Professor of Education (1970); Chairperson, Department of Education; A.B. 1957, Northeastern University; A.M. 1958, Boston University; Ed. M. 1960, Harvard University; Ph.D. 1970, University of California

Fortier, Paul J. Associate Professor of Electrical and Computer Engineering (1994); B.S. 1978, University of Lowell (UMass Lowell); M.S. 1981, Southeastern Massachusetts University (UMass Dartmouth); D.Sc. 1993, University of Massachusetts Lowell

Fowler, Alex J. Assistant Professor of Mechanical Engineering (1994); B.A. 1987, Wesleyan University; Ph.D. 1993, Duke University

Franko, Debra L. Assistant Professor of Psychology (1994); B.A. 1979, University of Michigan; Ph.D. 1986, McGill University

Freedman, Janet Dean of Library Services (1978); Professor of Education (1984); B.S. 1962, M.S. 1966, Simmons College; Ed.D. 1984, Boston University

Freiberg, Pearlee Professor of Art History (1973); B.A. 1964, University of Illinois; M.A. 1969, Ph.D. 1975, University of Chicago

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Gamburd, Geraldine Professor of Sociology and Anthropology (1971); B.A. 1948, University of Rochester; M.A. 1958, University of Michigan; Ph.D. 1972, Columbia University

Gardner, Janet E. Visiting Lecturer in English (1995); B.A. 1988, M.A. 1990, California State University, Sacramento; Ph.D. 1995, University of Massachusetts Amherst

Gearing, Juanita N. Associate Professor of Chemistry (1994); B.A. 1968, Rice University; Ph.D. 1973, University of Texas

Georgianna, Daniel L. Professor of Economics (1978); B.S. 1965, College of the Holy Cross; Ph.D. 1977, University of Massachusetts Amherst

Gifun, Frederick V. Professor of History (1973); B.A. 1963, Northeastern University; M.A. 1964, University of Oregon; Ph.D. 1972, University of Florida

Gilmore, Harold L. Professor of Management and Human Resources (1987); B.S.E.E. 1953, Norwich University; M.S. 1983, Shippensburg University; M.B.A. 1958, Syracuse University; M.S. 1978, St. Francis College; Ph.D. 1970, Syracuse University

Glasser, Howard T. Professor of Design (1970); Art Students League of New York and Brooklyn Museum Art School

Goldberg, Barbara Associate Professor of Design (1988); B.A. 1952, M.A. 1955, Boston University

Goldman, Harvey Professor of Design (1977); Chairperson, Department of Design; B.F.A. 1974, University of Illinois; M.F.A. 1976, University of Massachusetts Amherst

Golen, James A. Associate Professor of Chemistry (1976); B.S. 1965, Southeastern Massachusetts University (UMass Dartmouth); Ph.D. 1970, University of Massachusetts Amherst

Golen, Richard F. Associate Professor of Management and Human Resources (1984); Chairperson, Department of Management and Human Resources; B. S. 1974, Southeastern Massachusetts University (UMass Dartmouth); M.B.A. 1976, Suffolk University; J.D. 1983, Suffolk Law School

Gray, John W. Professor of Computer and Information Science and Electrical and Computer Engineering (1972); B.S.E.E. 1957, University of Nebraska; M.E.E. 1959, New York University; Ph.D. 1966, Ohio State University

Green, Robert Professor of Computer and Information Science and Electrical and Computer Engineering (1982); B.S. 1968, M.S. 1971, Ph.D. 1972, University of Michigan

Griffin, Michael Visiting Lecturer in Accounting and Finance (1986, 1988); B.S. 1980, Providence College; M.B.A. 1982, Bryant College; 1990, Certified Management Accountant 1990

Griffith, James T. Professor of Medical Laboratory Science (1974); Chairperson, Department of Medical Laboratory Science; B.S. 1970, Southeastern Massachusetts University (UMass Dartmouth); Certified 1970, The Memorial Hospital of Rhode Island School of Medical Technology; M.S. 1976, Southeastern Massachusetts University (UMass Dartmouth); Ph.D. 1992, Walden University

Griffith, Robert Professor of Biology (1976); B.A. 1965, Catawba College; M.S. 1968, Ph.D. 1972, Yale University

Grzegorczyk, Iwona M. Assistant Professor of Mathematics (1993); M.Sc. 1982, Warsaw University; Ph.D. 1990, University of California Berkeley

Gustin, Christopher Associate Professor of Design (1988); B.F.A. 1975, Kansas City Art Institute; M.F.A. 1977, New York State College of Ceramics

Habicht, Louise A. Director of Honors Programs (1993); Professor of English (1966); B.A. 1963, University of North Carolina Greensboro; Ph.D. 1971, Brown University

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Haimson, Barry R. Professor of Psychology (1967); Chairperson, Department of Psychology; B.A. 1963, Brandeis University; A.M. 1965, Ph.D. 1970, Boston University

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Halvorson, Harlyn O. Director, Policy Center for Marine Biosciences and Technology (1993); Adjunct Professor of Biology (1993); B.S. 1948, M.S. 1950, University of Minnesota; Ph.D. 1952, University of Illinois

Hamlet, Susan Associate Professor of Design (1988); B.A. 1976, Mount Holyoke College; M.F.A. 1978, Rochester Institute of Technology

Hammond, Gerald B. Associate Professor of Chemistry (1990); B.S. 1975, Universidad Catolica del Peru; M.S. 1979, University of British Columbia; Ph.D. 1984, University of Birmingham

Hansberry, John W. Professor of Mechanical Engineering (1969, 1973); B.A. 1965, B.S.M.E. 1966, Rice University; Sc.M. 1968, Ph.D. 1973, Brown University; Registered Professional Engineer

Haq, Kazi Professor of Physics (1970); B.Sc. 1945, M.Sc. 1946, Dacca University; Sc.D. 1954, Massachusetts Institute of Technology

Hargreaves, Kevin J. Professor of History (1972); B.A. 1964, Beloit College; M.A. 1966, Ph.D. 1974, Brandeis University

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Helgeland, Robert Christian Associate Professor of Electrical Engineering Technology and Electrical and Computer Engineering (1970); Chairperson, Department of Electrical Engineering Technology; B.S.E.E. 1968, Southeastern Massachusetts University (UMass Dartmouth); M.S.E.E. 1970, Northeastern University; Registered Professional Engineer

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Hirshfeld, Alan Professor of Physics (1978); B.A. 1973, Princeton University; M.S. 1975, Ph.D. 1978, Yale University

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Hogan, Richard A. Professor of Philosophy (1973); B.A. 1967, Middlebury College; M.A. 1969, Purdue University; Ed.M. 1989, Harvard University; Ph.D. 1974, Purdue University

Hogan, William V. Professor of Economics (1978); Chairperson, Department of Economics; B.A. 1970, Southeastern Massachusetts University (UMass Dartmouth); M.A. 1974, Ph.D. 1976, Cornell University

Holt, William R. Professor of Psychology (1973); B.A. 1967, Williams College; M.A. 1972, Ph.D. 1973, Brown University

Hooper, Robert J. Professor of Chemistry (1967); B.S. 1953, King's College; M.S. 1959, Ph.D. 1962, Notre Dame University

Houchins, Sue E. Associate Professor of English (1994); B.A. 1966, M.A. 1969, University of California, Los Angeles

Houser, Catherine, Associate Professor of English (1987); B.A. 1978, M.F.A. 1986, Arizona State University

Hsu, Jong-Ping Professor of Physics (1978); B.S. 1962, National Taiwan University; M.S. 1965, National Tsing-Hwa University; Ph.D. 1969, University of Rochester

Huff, Toby E. Professor of Sociology and Anthropology (1971); B.A. 1965, Northeastern University; M.A. 1967, Northwestern University; Ph.D. 1971, The New School of Social Research

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Jackson, Raymond Professor of Accounting and Finance (1973); S.B. 1958, Massachusetts Institute of Technology; M.B.A. 1960, University of Chicago; Ph.D. 1967, Boston University

Jacobskind, Barbara R. Professor of English (1971); B.A. 1966, Pennsylvania State University; M.A. 1967, Ph.D. 1970, Brown University

Jhaveri, Madhusudan Professor of Civil and Environmental Engineering (1974); B.S.C. 1963, S.V.V., Gujarat, India; M.S. 1968, North Dakota State University; Ph.D. 1977, New Jersey Institute of Technology; Registered Professional Engineer

Johnson, Rollin B. Executive Director, Policy Center for Marine Biosciences and Technology (1993); Adjunct Professor of Biology (1993); B.Sc. 1977, Yale University; M.Phil. 1980, Ph.D. 1989, Cambridge University, England

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Kahalas, Harvey Professor of Management/Human Resources (1994); B.S. 1965, Boston University; M.B.A. 1966, University of Michigan; Ph.D. 1971, University of Massachusetts Amherst

Kamm, Lewis Associate Dean, College of Arts and Sciences (1990); Professor of Foreign Literature and Languages and Computer and Information Science (1971); B.A. 1966, Rutgers University; M.A. 1967, Ph.D. 1971, Brown University

Kaplowitz, Laurie Professor of Fine Arts (1978); B.F.A. 1973, Boston University; M.F.A. 1975, American University

Kaput, James J. Professor of Mathematics (1968); B.S. 1964, Worcester Polytechnic Institute; M.A. 1966, Ph.D. 1968, Clark University

Karakaya, Fahri Professor of Marketing and Business Information Systems (1987); B.S. 1976, North Adams State College; M.B.A. 1979, University of Massachusetts Amherst; Ph.D. 1987, Clemson University

Kasilingam, Dayalan P. Assistant Professor of Electrical and Computer Engineering (1993); B.A. 1981, University of Cambridge, England; M.S. 1982, Ph.D. 1987, California Institute of Technology

Kazama, Frederick Y. Professor of Biology (1974); A.B. 1964, University of Nebraska; Ph.D. 1969, University of California

Kearsley, Anthony J. Assistant Professor of Mathematics (1995); B.A. 1990, University of Maryland; M.A. 1994, Ph.D. 1995, Rice University

Kellerman, Joan Assistant Professor of English (1981); B.A. 1968, Ph.D. 1977, State University of New York/Buffalo

Kenty, Janet Visiting Lecturer of Community Nursing (1987); B.S. 1967, University of Massachusetts Amherst; M.S. 1979, Boston University

Kenyon, Peter T. Associate Professor of Electrical and Computer Engineering (1993); B.S. 1974, Northeastern University; M.S. 1977, Ph.D. 1979, Massachusetts Institute of Technology

Kern, Wolfhard Professor of Physics (1964); B.Sc. 1948, M.Sc. 1951, Universitat Frankfurt/Main; Ph.D. 1958, Universitat Bonn

Khalil, Omar E.M. Associate Professor of Marketing/Business Information Systems (1990); B.Com. 1971, Alexandria University; M.B.A. 1981, Ph.D. 1986, North Texas State University

Khanna, Sat Dev Professor of Civil and Environmental Engineering (1969); Chairperson, Department of Civil and Environmental Engineering; M.A. 1949, B.Sc. 1952, M.Sc. 1965, University of Punjab, India; Ph.D. 1968, University of Connecticut; Registered Professional Engineer

Kim, Saeja Oh Assistant Professor of Mathematics (1990); B.S. 1975, Seoul National University; M.S. 1985, Brown University; Ph.D. 1988, University of Illinois at Urbana-Champaign

Kim, Yong Ku Professor of Textile Sciences (1981); B.S. 1970, M.S. 1974, Seoul National University, Korea; Ph.D. 1980, North Carolina State University

Klingon, Karen Assistant Professor of Design (1987); B.F.A. 1978, Rhode Island School of Design; M.F.A. 1990, Indiana University

Kobu, Bulent Professor of Management and Human Resources (1987); M.S.M.E. 1961, Technical University of Istanbul; M.S.I.E. 1964, Purdue University; Ph.D. 1971, Istanbul University

Koot, Gerard M. Professor of History (1972); Chairperson, Department of History; B.A. 1969, Assumption College; M.A. 1969, Ph.D. 1972, State University of New York, Stony Brook

Koundinya, Ramakrishnan S Visiting Lecturer of Accounting and Finance (1992); B.Sc. 1957, M.A. 1959 M.Sc. 1960, University of Madras; M.S. 1968, Carnegie Mellon University; Ph.D. 1977, New York University

Kowalczyk, Robert E. Professor of Mathematics (1975); B.A. 1968, Southeastern Massachusetts University (UMass Dartmouth); Ph.D. 1972, Brown University

Kruger, Cynthia Professor of Education (1970); B.S. 1964, Bridgewater State College; M.A. 1965, Clark University; Ph.D. 1971, Fordham University

Krumholz, Susan Visiting Lecturer of Sociology/Anthropology (1990); B.A. 1975, Keene State College; J.D. 1978, University of Puget Sound; M.S. 1989, Northeastern University

Lafleur, Natalie Visiting Lecturer of Institutional Nursing (1988); B.S. 1974, Southeastern Massachusetts University (UMass Dartmouth); M.S. 1977, University of Rhode Island; C.A.G.S. 1988, Northeastern University

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LaFrancois, Helen Professor of Accounting and Finance (1982); B.S. 1962, M.B.A. 1976, M.S. 1987, Bryant College; C.P.A. State of Rhode Island

Langley, Kenneth D. Professor of Textile Sciences (1968); B.S. 1964, Southeastern Massachusetts Technological Institute (UMass Dartmouth); M.S. 1968, Institute of Textile Technology

Lannon, John M. Professor of English (1979); B.A. 1967, M.A. 1970, Ph.D. 1972, University of Massachusetts Amherst

Laoulache, Raymond N. Assistant Professor of Mechanical Engineering (1988); Sc.B. 1980, Sc.M. 1983, Northeastern University; Ph.D. 1987, Brown University

LaPlante, Merritt G. Professor of Marketing and Business Information Systems (1971); B.S. 1958, M.S. 1960, University of Massachusetts Amherst; Ph.D. 1966, Texas A & M University

Larschan, Richard J. Associate Professor of English (1972); B.A. 1964, Colby College; M.A. 1966, Ph.D. 1975, University of California

Law, Frederick M. Professor of Civil and Environmental Engineering (1970); B.S.E. 1956, Princeton University; M.S.C.E.A. 1962, Newark College of Engineering; Ph.D. 1965, Rutgers University; Registered Professional Engineer

Leamnson, Robert Professor of Biology (1978); B.S. 1955, M.S. 1965, Notre Dame University; Ph.D. 1973, University of Illinois

Leclair, Susan J. Professor of Medical Laboratory Science (1980); B.S. 1968, Stonehill College; Certified 1968, St. Vincent's Hospital School of Medical Technology; M.S. 1977, Southeastern Massachusetts University (UMass Dartmouth)

Lee, Deborah Visiting Lecturer of Foreign Literature and Languages (1990); B.A. 1984, Southeastern Massachusetts University (UMass Dartmouth); M.A. 1986, Brown University

Legault, Richard D. Professor of Management and Human Resources (1973); B.S., B.A. 1968, Southeastern Massachusetts University (UMass Dartmouth); M.B.A. 1973, University of Rhode Island; Ed.D. 1979, Boston University

Lemay, Gerald Professor of Electrical and Computer Engineering (1978); B.S. 1971, University of Massachusetts Amherst; M.S. 1978, Southeastern Massachusetts University (UMass Dartmouth); Ph.D. 1988, University of Rhode Island

Leon, Steven J. Professor of Mathematics (1979); B.S. 1965, M.S. 1966, Ph.D. 1971, Michigan State University

Leone, Anne Assistant Professor of Fine Arts (1993); B.F.A. 1981, Boston University; M.F.A. 1985, University of Cincinnati

Lesh, Richard Professor of Mathematics (1995); B.A. 1966, Hanover College; M.A. 1968, Ph.D. 1971, Indiana Unversity

Leung, George Yan-Chok Professor of Physics (1967); B.S. 1955, University of Illinois; M.S. 1957, Ph.D. 1963, Massachusetts Institute of Technology

Lewis, Armand F. Visiting Lecturer of Textile Sciences (1993); B.S. 1953, Southeastern Massachusetts University (UMass Dartmouth); M.S. 1955, Oklahoma State University; Ph.D. 1958, Lehigh University

Lintala, Eric Associate Professor of Fine Arts (1988); B.F.A. 1976, M.F.A. 1979, Kent State University

Liu, Hong Associate Professor of Computer and Information Science (1990); B.S. 1982, M.S. 1984, Hefei Polytechnic University, Ph.D. 1989, Polytechnic University

Logan, Lawrence B. Associate Professor of Accounting and Finance (1993); B.S.B.A. 1970, Roosevelt University; M.B.A. 1973, University of Chicago; Ph.D. 1983, University of Wisconsin Madison

London, Peter Professor of Art Education (1971); B.A. 1961, Queens College; M.F.A. 1962, Columbia University; Ed.D. 1970, Columbia University Teachers College

Luti, Vincent F. Professor of Music (1971); B.A. 1952, M.M. 1967, M.M.A. 1970, D.M.A. 1978, Yale University

Magrass, Yale R. Professor of Sociology and Anthropology (1978); B.A. 1976, Brandeis University; M.A. 1973, Ph.D. 1978, University of California

Maher, Jean Visiting Lecturer of Community Nursing (1978); B.S. 1966, M.S. 1968, Boston College

Mailloux, Carol Associate Professor of Community Nursing (1978); B.S. 1972, Salve Regina College; M.S. 1975, Boston College

Mandrioli, Michele I. Professor of Chemistry (1978); A.B. 1971, M.A. 1974, Ph.D. 1977, Clark University

Marinho, Rita Duarte Professor of Political Science (1978); B.A. 1974, Southeastern Massachusetts University (UMass Dartmouth); M.A. 1975, Ph.D. 1979, Brown University

Marlow, James E. Professor of English (1973); B.A. 1960, Dartmouth College; Ph.D. 1972, University of California

Martin, Gary Associate Professor of Mathematics (1989); B.A. 1979, Wesleyan University; Ph.D. 1985, Rutgers University

Maskooki, Kooros Professor of Accounting and Finance (1981); B.A. 1966, M.A. 1969, Western New Mexico University; M.A. 1970, University of Arizona; Ph.D. 1977, University of Nebraska

Massano, Giulio Professor of Foreign Literature and Languages (1974); Chairperson, Department of Foreign Literature and Languages; B.A. 1965, Studium Theologicum; M.A. 1971, Ph.D. 1973, Catholic University of America

Matsumoto, Barton M. Professor of Biology (1971); B.S. 1959, University of Oregon; M.S. 1964, University of Hawaii; Ph.D. 1971, University of California

McCabe, Robert Professor of Mathematics (1964); B.S. 1957, Union College; M.A. 1960, San Diego State College; Ph.D. 1971, Boston University

McCool, Jane A. Visiting Lecturer in Institutional Nursing (1994); B.S. 1977, University of Rhode Island; M.S. 1987, Boston University

McFarlane, Bryan Assistant Professor of Fine Arts (1993); B.F.A. 1981, M.F.A. 1983, Massachusetts College of Art

McNeil, Ronald D. Dean, College of Business and Industry (1992); Professor of Management and Human Resources (1992); B.A. 1964, Ambassador College, England; M.S. 1979, Ph.D. 1982, Memphis State University

Melanson, Philip H. Professor of Political Science (1971); B.A. 1966, M.A. 1968, Ph.D. 1972, University of Connecticut

Meressi, Tesfay Assistant Professor of Mechanical Engineering (1993); B.S. 1985, Addis Ababa University; M.S. 1990, Ph.D. 1993, University of California, Santa Barbara

Meyer, Katherine Assistant Professor of Community Nursing (1990); B.S., University of Michigan; M.S., Ph.D. 1990, Boston University

Michael, Robert Professor of History (1971); A.B. 1958, Boston University; M.A. 1968, Ph.D. 1972, University of Connecticut

Mikolajczak, Boleslaw Professor of Computer and Information Science (1987); Chairperson, Department of Computer and Information Science; M.S. 1970, Technical University Poznan; M.S. 1972, Adam Mickiewicz University; Ph.D. 1974, Dr. Habil. 1979, Technical University of Poznan

Miller, Heather J. Assistant Professor of Civil and Environmental Engineering (1994); B.S. 1984, Northeastern University; M.E. 1986, University of Virginia; Ph.D. 1994, University of New Hampshire

Miller, Larry M. Associate Professor of Sociology and Anthropology (1978); Chairperson, Department of Sociology and Anthropology; B.A. 1969, Ph.D. 1980, Brandeis University

Mills, Carolyn A. J. Associate Professor of Design (1967); B.F.A. 1963, Rhode Island School of Design

Millstein, Mark Assistant Professor of Design (1994); B.F.A. 1982, Atlanta College of Art; M.F.A. 1986, Massachusetts College of Art

Miraglia, Anthony J. Professor of Fine Arts (1975); Chairperson, Department of Fine Arts; B.F.A. 1973, Cleveland Institute of Art; M.F.A. 1975, Syracuse University

Mitchell, Betty L. Professor of History (1978); A.B. 1969, Douglass College; M.A. 1972, Ph.D. 1979, University of Massachusetts Amherst

Mogawer, Walaa S. Assistant Professor of Civil and Environmental Engineering (1989); B.Sc. 1981, Kuwait University; M.Sc. 1984, Ph.D. 1989, University of Rhode Island; Registered Professional Engineer

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Moss, Sanford A. Professor of Biology (1967); B.S. 1961, Yale University; Ph.D. 1965, Cornell University

Mulcare, Donald J. Professor of Biology (1969); B.S. 1962, St. Procopius College; Ph.D. 1968, University of Notre Dame

Murphy, Daniel J. Professor of Electrical and Computer Engineering (1962); B.S. 1960, New Bedford Institute of Technology (UMass Dartmouth); M.S. 1966, Ph.D. 1969, Northeastern University; Registered Professional Engineer

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Nee, James M. Professor of English (1971); B.A. 1959, M.A. 1963, Boston College; Ph.D. 1970, University of Michigan

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Noel, Barbara H. Professor of Music (1981); B.M. 1951, M.M., 1952, University of Kentucky; Ph.D. 1972, University of Illinois

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Ohly, John Associate Professor of Economics (1977); A.B. 1964, Williams College; A.M. 1968, Ph.D. 1975, Boston University

Ojadi, Emmanuel C. A., Assistant Professor of Chemistry (1988); B.Sc. 1979, University of Ife; M.A. 1982, Ph.D. 1986, Brandeis University

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Parente, Paul J. Professor of Mathematics (1954); B.S. 1954, Bradford Durfee College of Technology (UMass Dartmouth); A.M. 1961, Boston University

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Directions for Correspondence or Inquiries

By mail

The departments of the university receive mail through a central post office. Address correspondence to a specific individual or department as follows:

Name of Individual
Name of Department
University of Massachusetts Dartmouth
285 Old Westport Road
North Dartmouth, MA 02747-2300

By phone

The university has both a central switchboard and direct-dial phone lines. The partial listing given below will assist one in finding key people; but the switchboard staff are always ready to assist, weekdays 7:00-6:00 pm. University police answer the central phone after these hours.

Central phone number (switchboard): 508-999-8000

FAX phone number: 508-999-8901

INTERNET address: [<first initial><last name>]@UMASSD.EDU

Office hours

University office hours are generally 8:30 to 4:30, Monday through Friday, extending into evening hours for key offices that work with evening students, until 7 pm, and with a broader schedule of hours for the library. We recommend that you call ahead for an appointment.

Inquiries should be addressed to the following offices or officers:

Topic	Officer or Office	Phone 508-999-XXXX
Academics, General	Office of Academic Affairs	-8024
Academic Programs		
Arts and Sciences	Dean, College of Arts and Sciences	-8268; 8270
Business and Textile Sciences	Dean, College of Business and Industry	-8432
Continuing Education, Extension	Dean, Division of Continuing Education	-8290
Engineering	Dean, College of Engineering	-8539
Nursing	Dean, College of Nursing	-8586
Visual and Performing Arts	Dean, College of Visual and Performing Arts	-8564
Accounts—Student	Bursar	-8087
Admission, Alternative	Director, College Now Program	-8704
Admission, Graduate	Office of Graduate Programs	-8604
Admission, Undergraduate	Admissions Office	-8605; 8782
Advancement, Alumni Affairs	Director, Institutional Advancement	-8760
Academic Advising	Director, Academic Advising	-8519
Affirmative Action	Assistant Chancellor for Affirmative Action, Diversity, and Outreach	-8008
Business, Fiscal Affairs	Fiscal Affairs Division	-8051
Campus Housing	Director of Housing	-8140
Courses, Records, Registration	Office of University Records	-8615
Personnel	Director, Human Resources	-8060
Facilities, Plant, Grounds	Director, Physical Plant and Facilities	-8100
Financial Assistance	Director, Office of Financial Aid	-8632
Foundation, Scholarships	Executive Director, UMass Dartmouth Foundation	-8760
Library	Dean of Library Services	-8663
News and General Information	Director, News/Public Information	-8765
Police, Safety, Security	Chief of Safety and Security	-8107
Student Services, General	Vice Chancellor of Student Services	-8600
Student Life, Activities	Dean of Students	-8645
Transcripts	University Registrar	-8615

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